```
=> fil reg
FILE 'REGISTRY' ENTERED AT 10:30:52 ON 23 APR 2007
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STRUCTURE FILE UPDATES:   20 APR 2007  HIGHEST RN 931582-00-2
DICTIONARY FILE UPDATES:  20 APR 2007  HIGHEST RN 931582-00-2

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  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> d que stat l14
L3                STR
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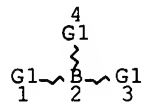


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VAR G1=O/X
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   4

STEREO ATTRIBUTES: NONE
L4                STR
```


```
VAR G1=1/6
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
```

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE
L5 STR

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 1
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M1-X7 C AT 1

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
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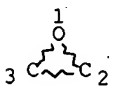
STEREO ATTRIBUTES: NONE
L7 12398 SEA FILE=REGISTRY SSS FUL L3 AND L4
L8 STR



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
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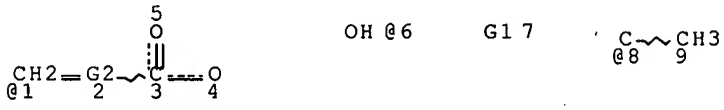
STEREO ATTRIBUTES: NONE
L9 STR



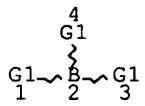
VAR G1=1/6
VAR G2=CH/8
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE
L11 5648 SEA FILE=REGISTRY SUB=L7 SSS FUL L3 AND L9 AND (L5 OR

L8)
L12 3404 SEA FILE=REGISTRY ABB=ON PLU=ON L11 NOT M/ELS
L13 963 SEA FILE=REGISTRY ABB=ON PLU=ON L12 NOT 1-20/NR
L14 934 SEA FILE=REGISTRY ABB=ON PLU=ON L13 NOT SI/ELS

=> d que stat l18
L3 STR



VAR G1=O/X
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

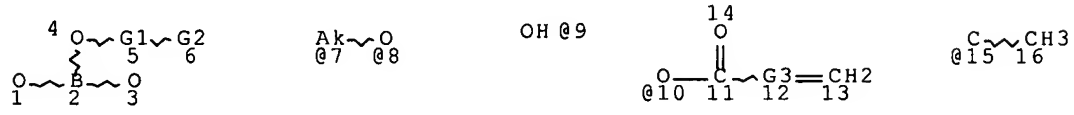
GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
L4 STR

VAR G1=1/6
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE
L7 12398 SEA FILE=REGISTRY SSS FUL L3 AND L4
L16 STR



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VAR G2=9/10
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NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 7
DEFAULT ECLEVEL IS LIMITED

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GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  16

STEREO ATTRIBUTES: NONE
L18           0 SEA FILE=REGISTRY SUB=L7 SSS FUL L16

100.0% PROCESSED    1834 ITERATIONS                          0 ANSWERS
SEARCH TIME: 00.00.01


=> fil hcap
FILE 'HCAPLUS' ENTERED AT 10:31:46 ON 23 APR 2007
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FILE COVERS 1907 - 23 Apr 2007  VOL 146 ISS 18
FILE LAST UPDATED: 22 Apr 2007  (20070422/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d his nofile

     (FILE 'HOME' ENTERED AT 09:22:06 ON 23 APR 2007)

     FILE 'HCAPLUS' ENTERED AT 09:22:24 ON 23 APR 2007
L1             2 SEA ABB=ON  PLU=ON  US2004101759/PN

     FILE 'REGISTRY' ENTERED AT 09:24:36 ON 23 APR 2007
L2            20 SEA ABB=ON  PLU=ON  (10377-51-2/BI OR 14283-07-9/BI OR
                  D SCA

     FILE 'LREGISTRY' ENTERED AT 09:35:36 ON 23 APR 2007
L3                STR
L4                STR
L5                STR

     FILE 'REGISTRY' ENTERED AT 09:42:40 ON 23 APR 2007
L6            50 SEA SSS SAM L3 AND L4
L7         12398 SEA SSS FUL L3 AND L4
                  SAV WEI646/A L7

     FILE 'LREGISTRY' ENTERED AT 09:44:57 ON 23 APR 2007
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L8              STR

     FILE 'REGISTRY' ENTERED AT 09:45:26 ON 23 APR 2007
L9              STR L4
L10          50 SEA SUB=L7 SSS SAM L3 AND L9 AND (L5 OR L8)
L11        5648 SEA SUB=L7 SSS FUL L3 AND L9 AND (L5 OR L8)
                SAV L11 WEI646S1/A
L12        3404 SEA ABB=ON  PLU=ON  L11 NOT M/ELS
L13         963 SEA ABB=ON  PLU=ON  L12 NOT 1-20/NR
L14         934 SEA ABB=ON  PLU=ON  L13 NOT SI/ELS
L15           6 SEA ABB=ON  PLU=ON  L2 AND L14

     FILE 'LREGISTRY' ENTERED AT 09:59:03 ON 23 APR 2007
L16             STR L3

     FILE 'REGISTRY' ENTERED AT 10:07:33 ON 23 APR 2007
L17           0 SEA SUB=L7 SSS SAM L16
L18           0 SEA SUB=L7 SSS FUL L16

     FILE 'HCAPLUS' ENTERED AT 10:14:45 ON 23 APR 2007
L19        1191 SEA ABB=ON  PLU=ON  L14
L20          26 SEA ABB=ON  PLU=ON  L14(L)DEV/RL
L21             QUE ABB=ON  PLU=ON  (LITHIUM OR LI)(3A)BATTERY
L22          21 SEA ABB=ON  PLU=ON  L19 AND L21
L23          33 SEA ABB=ON  PLU=ON  L20 OR L22


=> d l23 ibib abs hitstr hitind 1-33
```

L23 ANSWER 1 OF 33 HCAPLUS

ACCESSION NUMBER: 2006:1010866 HCAPLUS Full-text
DOCUMENT NUMBER: 145:380336
TITLE: Gel electrolytes of borate acrylate polymers, and nonaqueous electrolyte secondary batteries using them
INVENTOR(S): Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Kono, Kazushige; Yokoyama, Akihito; Mizutani, Masato; Ito, Tetsuya
PATENT ASSIGNEE(S): Hitachi Ltd., Japan; NOF Corporation
SOURCE: Jpn. Kokai Tokkyo Koho, 21pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006261024	A	20060928	JP 2005-79288	20050318
US 2007048616	A1	20070301	US 2006-376092	20060316

PRIORITY APPLN. INFO.: JP 2005-79288 A 20050318

AB The gel electrolytes have matrix polymers manufactured by polymerizing polymerizable group-terminated borate esters Z1(AO)lOB[O(AO)mZ2]O(AO)nZ3 (Z1-Z3 = polymerizable functional group, C1-10 hydrocarbyl; average molar content of the C1-10 hydrocarbyl in Z1-Z3 = 1.0-2.5 mol; AO = C2-4 oxyalkylene; l, m, n = 0-100; l + m + n = 1-300). Alternatively, the gel electrolytes further contain X1(AO)αOB[O(AO)βX2]O(AO)γX3 (X1-X3 = C1-10 hydrocarbyl; AO = same as above; α + β + γ = 1-300). Secondary batteries with good charging properties are provided with this invention.

IT **866555-99-9P**
RL: **DEV (Device component use)**; IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(gel electrolytes of borate acrylate polymers for nonaq. electrolyte secondary batteries)

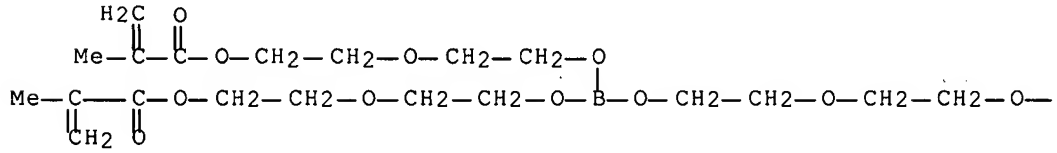
RN 866555-99-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyloxy-2,1-ethanediyl) ester, homopolymer (9CI) (CA INDEX NAME)

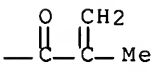
CM 1

CRN 866555-98-8
CMF C24 H39 B O12

PAGE 1-A



PAGE 1-B



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT **866555-99-9P**
RL: **DEV (Device component use)**; IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(gel electrolytes of borate acrylate polymers for nonaq. electrolyte secondary batteries)

L23 ANSWER 2 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:433595 HCAPLUS Full-text
DOCUMENT NUMBER: 145:413270
TITLE: High-throughput three-dimensional gel electrophoresis for versatile utilities: a stacked slice-gel system for separation and reactions (4SR)
AUTHOR(S): Salimullah, Md.; Mori, Masaki; Nishigaki, Koichi

CORPORATE SOURCE: Department of Functional Materials Science, Saitama University, Saitama, 338-8570, Japan
SOURCE: Genomics, Proteomics & Bioinformatics (2006), 4(1), 26-33
CODEN: GPBEBL; ISSN: 1672-0229
PUBLISHER: Science Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel high-throughput system, called the stacked slice-gel system for separation and reactions (4SR), was developed for the anal. of DNA/RNA and protein/peptide. The system provides a novel three-dimensional gel electrophoresis approach that exploits the property of stacked slice gels. It allows multiple samples simultaneously to react as well as to be separated, offering a two-dimensional (m+n) sample loading system. For this purpose, high-throughput multi-micro vessels (MMVs) containing variable nos. of wells (100 wells in this paper) have been used, which are made of 25 mm square-size polyacrylamide gels. Furthermore, after electrophoretic separation, a slice gel containing a desired sample can be easily removed and proceeded to the next step. Different biol. reactions as well as successive separation of products were effectively carried out dealing with DNA/RNA and protein/peptide. It shows that this system has a diversity of potentials to be developed.

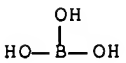
IT **610769-35-2**, TBE
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); **DEV (Device component use)**; ANST (Analytical study); BIOL (Biological study); USES (Uses)
(high-throughput three-dimensional gel electrophoresis for anal. of DNA/RNA and protein/peptide)

RN 610769-35-2 HCAPLUS

CN Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, mixt. with 2-amino-2-(hydroxymethyl)-1,3-propanediol and boric acid (H3BO3) (9CI) (CA INDEX NAME)

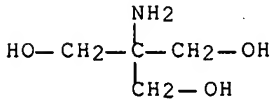
CM 1

CRN 10043-35-3
CMF B H3 O3



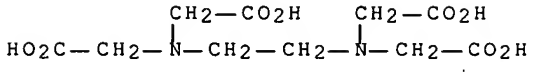
CM 2

CRN 77-86-1
CMF C4 H11 N O3



CM 3

CRN 60-00-4
CMF C10 H16 N2 O8



CC 9-1 (Biochemical Methods)
IT 57-50-1, Sucrose, analysis 83-88-5, Riboflavin, analysis
7727-54-0, Ammonium persulfate 7732-18-5, Water, analysis
9002-84-0, Teflon 9003-05-8, Polyacrylamide 610769-35-2,
TBE
RL: ARU (Analytical role, unclassified); BUU (Biological use,
unclassified); **DEV (Device component use)**; ANST
(Analytical study); BIOL (Biological study); USES (Uses)
(high-throughput three-dimensional gel electrophoresis for anal.
of DNA/RNA and protein/peptide)
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L23 ANSWER 3 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:77298 HCAPLUS Full-text
DOCUMENT NUMBER: 144:153448
TITLE: Electrode for secondary polymer electrolyte battery and the battery
INVENTOR(S): Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Shoichi; Itoh, Tetsuya; Yabe, Takeshi; Ichimiya, Kengo
PATENT ASSIGNEE(S): Hitachi, Ltd., Japan; NOF Corporation
SOURCE: PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006009284	A1	20060126	WO 2005-JP13671	200507 20

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: JP 2004-211412 A 200407

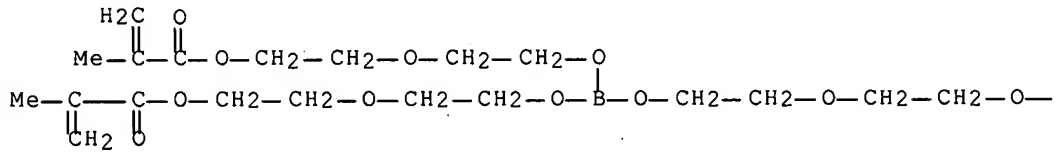
AB The battery has a cathode containing a cation-intercalating cathode active mass, an anode containing a cation-intercalating anode active mass, and an electrolyte layer interposed between the cathode and the anode and composed of an ion-conductive polymer for transferring the cations; where the cathode and/or the anode comprises a B-cong. organic compound as a binder component; and the cathode and/or anode active mass is treated with silane, Al, or Ti for facilitating intercalation/decalation of cations, thereby suppressing decrease in charge/discharge capacity.

IT **866555-98-8**
RL: **DEV (Device component use)**; USES (Uses)
(electrodes having boron-containing organic compound binders and modified active mass for secondary **lithium batteries**)

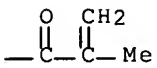
RN 866555-98-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyloxy-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrodes
(electrodes having boron-containing organic compound binders and modified active mass for secondary **lithium batteries**)

IT Secondary **batteries**
(**lithium**; electrodes having boron-containing organic compound binders and modified active mass for secondary **lithium batteries**)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(amorphous; electrodes having boron-containing organic compound binders and modified active mass for secondary **lithium batteries**)

IT 9003-11-6, Ethylene oxide-propylene oxide copolymer 12057-17-9, Lithium manganese oxide (LiMn2O4) 14283-07-9, Lithium tetrafluoroborate 30989-05-0 90076-65-6 132843-44-8 **866555-98-8**
RL: **DEV (Device component use)**; USES (Uses)
(electrodes having boron-containing organic compound binders and modified active mass for secondary **lithium batteries**)

IT 96-48-0, γ-Butyrolactone 555-75-9, Aluminum ethoxide 992-92-7, Tetramethoxy titanium 12002-26-5, MKC silicate MS51

51981-18-1, Vinyl ethoxy silane
RL: MOA (Modifier or additive use); USES (Uses)
(electrodes having boron-containing organic compound binders and modified active mass for secondary **lithium batteries**)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 4 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1106331 HCAPLUS Full-text
DOCUMENT NUMBER: 143:389780
TITLE: Secondary batteries with high discharge capacity and cycle efficiency, and cathode and anodes therefor
INVENTOR(S): Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Akihito; Ito, Tetsuya; Yabe, Takeshi; Ichinomiya, Kengo
PATENT ASSIGNEE(S): Hitachi Ltd., Japan; NOF Corporation
SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005285416	A	20051013	JP 2004-94798	200403 29
PRIORITY APPLN. INFO.:			JP 2004-94798	200403 29

AB The batteries contain ion-conductive polymer electrolyte layers and B-containing organic compds. as binders in cathodes and/or anodes.

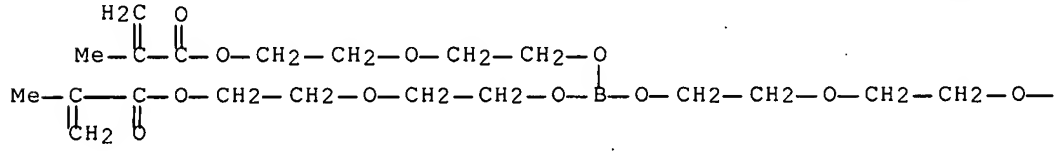
IT **866555-99-9DP, lithium** complex
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(secondary **batteries** containing B-containing organic compds. as binders in cathodes and/or anodes)

RN 866555-99-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyloxy-2,1-ethanediyl) ester, homopolymer (9CI) (CA INDEX NAME)

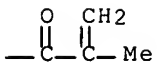
CM 1

CRN 866555-98-8
CMF C24 H39 B O12

PAGE 1-A



PAGE 1-B



IC ICM H01M004-62
ICS H01M004-02; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST battery electrode ion conductive electrolyte polymer; diethylene glycol methacrylate borate lithium electrode; triethylene glycol methyl ether borate electrode; **lithium** trifluoromethylsulfonyl imide electrode **battery**
IT 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 866556-00-5D, **lithium** complex
RL: DEV (Device component use); USES (Uses)
(secondary **batteries** containing B-containing organic compds. as binders in cathodes and/or anodes)
IT **866555-99-9DP, lithium** complex
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(secondary **batteries** containing B-containing organic compds. as binders in cathodes and/or anodes)

L23 ANSWER 5 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:780766 HCAPLUS Full-text
DOCUMENT NUMBER: 143:369910
TITLE: Stability of **Lithium** Polymer **Battery** Based on Substituted Spinel Cathode and PEG-Borate Ester/PC Plasticized Polymer Electrolyte
AUTHOR(S): Kottegoda, Iresha R. M.; Bakenov, Zhumabay; Ikuta, Hiromasa; Wakihara, Masataka
CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Science and Engineering, Tokyo Institute of Technology, Meguro-ku, Tokyo, 152-8552, Japan
SOURCE: Journal of the Electrochemical Society (2005), 152(8), A1533-A1538
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The possible application of a novel plasticized polymer electrolyte in **lithium** **battery** based on substituted spinel cathode was studied. The polymer electrolyte was prepared by dissolving LiClO4 in the host polymer, poly(ethylene glycol) methacrylates (PEGMs) plasticized by both propylene carbonate (PC) and poly(ethylene glycol)-borate ester (PEG-BE) of various compns. The ionic conductivity σ of the polymer is enhanced with the addition of PC, while the lithium ion transference number tLi+ reaches an optimum in a mixture of 49% PEG-BE and 21% of PC in the polymer weight PEG-BE was recognized to interact with anion as a Lewis acid, which leads to high lithium ion conductivity The observed trend

of σ and tLi+ with decreasing PEG-BE is suggested as being due to enhancement of anion conductivity in the medium as a result of low viscous and high dielec. properties of PC coupled with suppressed Lewis acid interaction of PEG-BE. The cycle performance and the storage stability of the Li/polymer electrolyte/LiMn1.8Co0.2O4 cell comprising the above electrolyte are quite acceptable for practical utility.

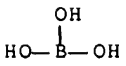
IT 106008-94-0
RL: **DEV (Device component use)**; USES (Uses)
(d.p. 12, plasticizer; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

RN 106008-94-0 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-methyl-ω-hydroxy-, ester with boric acid (H3BO3) (CA INDEX NAME)

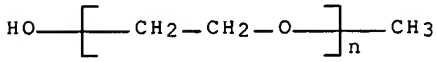
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76

ST **lithium** polymer **battery** PEG borate ester carbonate plasticized electrolyte

IT Electric capacitance
(discharge capacity vs. cycling and potential; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Electric potential
(discharging/charging cycles; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Secondary **batteries**
(**lithium**; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Ionic conductivity
(of plasticized polymer electrolytes; stability of **lithium** polymer **battery** based on substituted

spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Differential scanning calorimetry
(of polymer electrolyte systems; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT **Battery** electrolytes
Polymer electrolytes
Stability
Transference number
Viscosity
(stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Carbon black, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT Storage
(stability; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT 108927-94-2DP, Poly(ethylene glycol) dimethacrylate-poly(ethylene glycol) monomethacrylate monomethyl ether copolymer, lithium ion complexes
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(PDE600-PME400 copolymer; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT 130811-82-4P, Cobalt lithium manganese oxide (Co0.2LiMn1.8O4)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cathode material; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT **106008-94-0**
RL: **DEV (Device component use)**; USES (Uses)
(d.p. 12, plasticizer; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(plasticizer; stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT 7439-93-2, Lithium, uses 7791-03-9 24937-79-9, Polyvinylidene fluoride
RL: DEV (Device component use); USES (Uses)
(stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT 17341-24-1DP, complexes with PDE600-PME400 copolymer, uses

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(stability of **lithium** polymer **battery** based on substituted spinel cathode and PEG-borate ester/PC plasticized polymer electrolyte)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 6 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:453550 HCAPLUS Full-text
DOCUMENT NUMBER: 142:478369
TITLE: Conductive media for electrophoresis under low salt conditions
INVENTOR(S): Kern, Scott E.; Brody, Jonathan R.
PATENT ASSIGNEE(S): Faster Better Media LLC, USA
SOURCE: U.S. Pat. Appl. Publ., 26 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005109620	A1	20050526	US 2004-980826	20041104
US 7163610	B2	20070116		
WO 2005050161	A2	20050602	WO 2004-US37042	20041108
WO 2005050161	A3	20051124		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:		
US 2003-520645P	P	20031118
US 2004-542876P	P	20040210

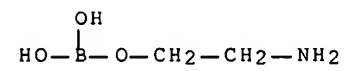
US 2004-549984P	P	200403 05
US 2004-582427P	P	200406 25
US 2004-980826	A	200411 04

AB A series of low molarity conductive media based on non-buffering univalent cations, such as sodium chloride-sodium acetate (SCA), sodium boric acid (SB), lithium boric acid, and lithium acetate mitigate the "runaway" pos. feedback heating loop produced by conventional media containing biol. amine buffers and permit improved DNA electrophoresis under the conditions of low salt concentration These media serve well in ultra-fast DNA electrophoresis and in high-resolution sepns. of RNA and DNA fragments. Sodium boric acid (5 mM, pH = 6) (0.5+) and lithium acetate (5 mM) resolved RNA within 10 min (400 V, 40 V/cm) in agarose gel electrophoresis. These low-molarity media resolved RNA under lower heat and conductive conditions than the conventional MOPS medium.

IT **10377-81-8**
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; NUU (Other use, unclassified); ANST (Analytical study);
USES (Uses)
(conductive medium containing; conductive media for electrophoresis under low salt conditions)

RN 10377-81-8 HCAPLUS

CN Ethanol, 2-amino-, monoester with boric acid (H3BO3) (9CI) (CA INDEX NAME)



IC ICM G01N027-453
INCL 204450000; 204600000
CC 9-7 (Biochemical Methods)
Section cross-reference(s): 3

IT 127-08-2, Potassium acetate 127-09-3, Sodium acetate 546-89-4, Lithium acetate 563-67-7, Rubidium acetate 1854-30-4
10377-81-8 12676-27-6 12712-38-8, Potassium borate 13840-56-7, Sodium borate 17341-24-1, analysis 50647-13-7, Rubidium borate
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; NUU (Other use, unclassified); ANST (Analytical study);
USES (Uses)
(conductive medium containing; conductive media for electrophoresis under low salt conditions)

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 7 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:1156748 HCAPLUS Full-text
DOCUMENT NUMBER: 142:77635
TITLE: Ionic liquids and ionic liquid acids with high

temperature stability for fuel cell and other high temperature applications

INVENTOR(S): Angell, C. Austen; Xu, Wu; Belieres, Jean-Philippe; Yoshizawa, Masahiro

PATENT ASSIGNEE(S): Arizona Board of Regents A Body Corporate Acting On Behalf of Arizona State University, USA

SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004114445	A1	20041229	WO 2004-US13719	20040503
WO 2004114445	B1	20050210		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1618618	A1	20060125	EP 2004-751209	20040503
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2007500429	T	20070111	JP 2006-532544	20040503
US 2007026295	A1	20070201	US 2005-555468	20051101

PRIORITY APPLN. INFO.:		
US 2003-467796P	P	20030501
US 2003-501626P	P	20030908
WO 2004-US13719	W	20040503

AB Disclosed are developments in high temperature fuel cells including ionic liqs. with high temperature stability and the storage of inorg. acids as di-anion salts of low volatility. The formation of ionically conducting liqs. of this type having conductivities of unprecedented magnitude for nonaq. systems is described.

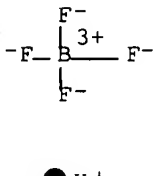
The stability of the dianion configuration is shown to play a role in the high performance of the noncorrosive proton-transfer ionic liqs. as high temperature fuel cell electrolytes. Performance of simple H2 (g) electrolyte/O2 (g) fuel cells with the new electrolytes is described. Superior performance both at ambient temperature and temps. up to and above 200° are achieved. Both neutral proton transfer salts and the acid salts with HSO-4 anions, give good results, the bisulfate case being particularly good at low temps. and very high temps. The performance of all electrolytes is improved by the addition of a small amount of nonvolatile base of pKa value intermediate between those of the acid and base that make the bulk electrolyte. The preferred case is the imidazole-doped ethylammonium hydrogen sulfate which yields behavior superior in all respects to that of the industry standard phosphoric acid electrolyte.

IT 2805-17-6
RL: **DEV (Device component use)**; USES (Uses)
(ionic liqs. and ionic liquid acids with high temperature stability for fuel cell and other high temperature applications)

RN 2805-17-6 HCAPLUS
CN Ethanol, 2-amino-, tetrafluoroborate(1-) (8CI, 9CI) (CA INDEX NAME)

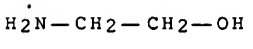
CM 1

CRN 16872-11-0
CMF B F4 . H
CCI CCS



CM 2

CRN 141-43-5
CMF C2 H7 N O



IC ICM H01M008-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1341-49-7, Ammonium hydrogen fluoride **2805-17-6**
20748-72-5 22113-86-6, Ethylammonium nitrate 22113-87-7, Methylammonium nitrate 30781-73-8, Dimethylammonium nitrate 53226-35-0 55145-87-4, uses 60717-38-6 71173-55-2 815574-79-9 815574-80-2 815574-81-3 815574-82-4 815574-83-5 815574-84-6 815574-85-7 815574-86-8
RL: **DEV (Device component use)**; USES (Uses)
(ionic liqs. and ionic liquid acids with high temperature stability for fuel cell and other high temperature applications)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 8 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:874147 HCAPLUS Full-text
DOCUMENT NUMBER: 141:373807
TITLE: Electrolytes for double-layer capacitors
INVENTOR(S): Tsujimoto, Tomoo; Takagawa, Minoru; Abe, Hisaki; Kanbara, Yutaka; Morohashi, Kenji
PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004296602	A	20041021	JP 2003-84557	200303 26

PRIORITY APPLN. INFO.: JP 2003-84557 200303 26

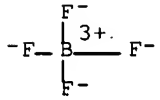
AB The electrolytes contain ammonium salts which have hydroxyalkyl groups to increase the capacitance of double-layer capacitors.

IT **152218-75-2 676578-25-9**
RL: **DEV (Device component use)**; USES (Uses)
(electrolytes containing ammonium salts for double-layer capacitors)

RN 152218-75-2 HCAPLUS
CN Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

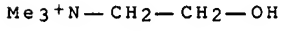
CM 1

CRN 14874-70-5
CMF B F4
CCI CCS



CM 2

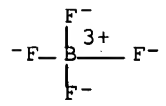
CRN 62-49-7
CMF C5 H14 N O



RN 676578-25-9 HCAPLUS
CN 1-Propanaminium, 3-hydroxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

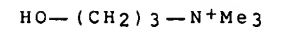
CM 1

CRN 14874-70-5
CMF B F4
CCI CCS



CM 2

CRN 10238-59-2
CMF C6 H16 N O



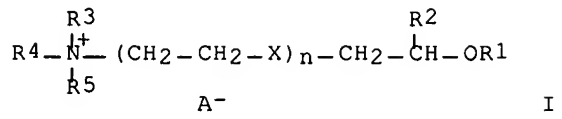
IC ICM H01G009-038
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 72
IT 118812-70-7, Diethyldimethylammonium tetrafluoroborate
152218-75-2 676578-25-9
RL: DEV (Device component use); USES (Uses)
(electrolytes containing ammonium salts for double-layer capacitors)

L23 ANSWER 9 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:778928 HCAPLUS Full-text
DOCUMENT NUMBER: 141:298676
TITLE: Quaternary ammonium ordinary temperature molten salt and its manufacture
INVENTOR(S): Horie, Haruyuki; Yoshimura, Hiroyuki
PATENT ASSIGNEE(S): Tosoh Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

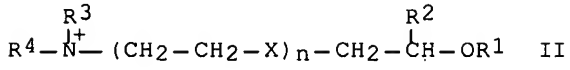
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004262897	A	20040924	JP 2003-57303	200303 04

PRIORITY APPLN. INFO.: JP 2003-57303
200303
04

GI



I



II

AB The title salt of I (R1 = H, Me, or Et group; R3-5 = C1-4 alkyl group; X = O, NR6, or S; R6 = H, Me, or Et; n = integer 1-3; A = anion), useful as an electrolyte for a secondary **lithium battery** or a double-layer capacitor, is manufactured by reacting a tertiary amine compound II (R1-2 = H, Me, or Et group; R3-4 = C1-4 alkyl group; X = O, NR6, or S; R6 = H, Me or Et group; n = integer 1-3) with a dialkyl carbonate salt to obtain a quaternary alkyl carbonate salt and exchanging the anion.

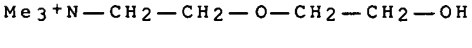
IT **763122-38-9P 763122-42-5P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium batteries** by quaternization of tertiary amines with dialkyl carbonates)

RN 763122-38-9 HCAPLUS

CN Ethanaminium, 2-(2-hydroxyethoxy)-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

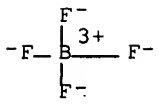
CM 1

CRN 742659-57-0
CMF C7 H18 N O2



CM 2

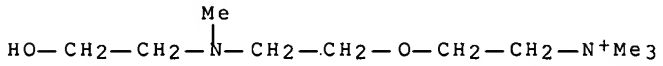
CRN 14874-70-5
CMF B F4
CCI CCS



RN 763122-42-5 HCAPLUS
CN Ethanaminium, 2-[2-[(2-hydroxyethyl)methylamino]ethoxy]-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

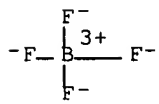
CM 1

CRN 763122-41-4
CMF C10 H25 N2 O2



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



IC ICM C07C215-14
ICS C07C213-02; C07C217-08; H01G009-038; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST double layer capacitor electrolyte quaternary ammonium salt manuf; secondary **lithium battery** electrolyte quaternary ammonium salt manuf
IT Capacitors
(double layer; manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium batteries** by quaternization of tertiary amines with dialkyl carbonates)
IT Battery electrolytes
Electrolytes
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium batteries** by quaternization of tertiary amines with dialkyl carbonates)
IT Quaternary ammonium compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium**

batteries by quaternization of tertiary amines with dialkyl carbonates)

IT 108-32-7P, Propylene carbonate 743436-74-0P 743436-82-0P
763122-38-9P 763122-39-0P 763122-40-3P
763122-42-5P 763122-43-6P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary lithium batteries by quaternization of tertiary amines with dialkyl carbonates)

IT 616-38-6, Dimethyl carbonate 929-06-6 14874-70-5, Tetrafluoroborate 37181-39-8, Trifluoromethane sulfonate 83016-70-0 90076-65-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary lithium batteries by quaternization of tertiary amines with dialkyl carbonates)

L23 ANSWER 10 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:778927 HCAPLUS Full-text
DOCUMENT NUMBER: 141:298675
TITLE: Quaternary ammonium ordinary temperature molten salt and its manufacture
INVENTOR(S): Horie, Haruyuki; Yoshimura, Hiroyuki
PATENT ASSIGNEE(S): Tosoh Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004262896	A	20040924	JP 2003-57302	20030304

PRIORITY APPLN. INFO.: JP 2003-57302 20030304

GI

I II

AB The title salt of I (R1 = H, Me, or Et group; R2-4 = C1-4 alkyl group; R5 = H or Me group; n = 5 or 6; A = anion), useful as an electrolyte for a secondary lithium battery or a double-layer capacitor, is manufactured by reacting a tertiary amine compound II (R1 = H, Me, or Et group; R2-3 = C1-4 alkyl group; R5 = H or Me group;

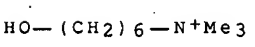
n = 5 or 6; A = anion) with a dialkyl carbonate salt to obtain a quaternary alkyl carbonate salt and exchanging the anion.

IT 763114-80-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium batteries** by quaternization of tertiary amines with dialkyl carbonates)

RN 763114-80-3 HCAPLUS
CN 1-Hexanaminium, 6-hydroxy-N,N,N-trimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

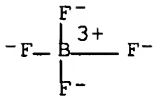
CM 1

CRN 24004-14-6
CMF C9 H22 N O



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



IC ICM C07C215-40
ICS C07C213-02; C07C217-08; H01G009-038; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST double layer capacitor electrolyte quaternary ammonium salt manuf; secondary **lithium battery** electrolyte quaternary ammonium salt manuf

IT Capacitors
(double layer; manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium batteries** by quaternization of tertiary amines with dialkyl carbonates)

IT Battery electrolytes
Electrolytes
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium batteries** by quaternization of tertiary amines with dialkyl carbonates)

IT Quaternary ammonium compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(manufacture of quaternary ammonium salts as electrolytes for

double-layer capacitors or secondary **lithium** **batteries** by quaternization of tertiary amines with dialkyl carbonates)

IT 108-32-7P, Propylene carbonate **763114-80-3P** 763114-81-4P 763114-82-5P 763114-83-6P 763114-84-7P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium** **batteries** by quaternization of tertiary amines with dialkyl carbonates)

IT 616-38-6, Dimethyl carbonate 1862-07-3, 6-Dimethylamino-1-hexanol 14874-70-5, Tetrafluoroborate 37181-39-8, Trifluoromethane sulfonate 58390-19-5 90076-65-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of quaternary ammonium salts as electrolytes for double-layer capacitors or secondary **lithium** **batteries** by quaternization of tertiary amines with dialkyl carbonates)

L23 ANSWER 11 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:430508 HCAPLUS Full-text
DOCUMENT NUMBER: 141:9609
TITLE: **Lithium** secondary **battery**
INVENTOR(S): Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Shoichi; Yabe, Takeshi
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 14 pp., Cont.-in-part of U.S. Ser. No. 623,497.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004101759	A1	20040527	US 2003-717646	200311 21
US 2004101758	A1	20040527	US 2003-623497	200307 22
PRIORITY APPLN. INFO.:			JP 2002-337790 A	200211 21
			US 2003-623497 A2	200307 22

AB The object of the present invention is to provide a **lithium** secondary **battery** of high output. According to the present invention, there is provided a **lithium** secondary **battery** having a pos. electrode and a neg. electrode which reversibly intercalate and deintercalate lithium and an electrolyte containing an ion conductive material and an electrolytic salt, where the electrolyte contains an electrolytic salt and a boron-containing compound represented by the following formula Z1(AO)mOB(O(AO)nZ2)O(AO)pZ3 where, B is boron atom, Z1, Z2, and Z3 are the organic groups having an acryloyl group or a methacryloyl group; AO represents an

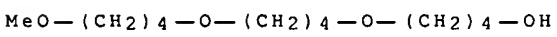
oxyalkylene group of C1-6 and comprises one, or two or more of the oxyalkylene groups; and m, n and p each represents an average degree of polymerization of the oxyalkylene group and are >0 and <4 provided that m+n+p ≥1.

IT **693782-27-3P 693782-28-4P 693782-29-5P**
693782-30-8P 693782-31-9P 693782-32-0P
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**lithium secondary battery**)

RN 693782-27-3 HCAPLUS
CN Boric acid (H3BO3), 4-[4-(4-methoxybutoxy)butoxy]butyl 4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX NAME)

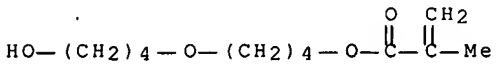
CM 1

CRN 693782-26-2
CMF C13 H28 O4



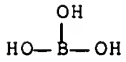
CM 2

CRN 78972-17-5
CMF C12 H22 O4



CM 3

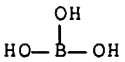
CRN 10043-35-3
CMF B H3 O3



RN 693782-28-4 HCAPLUS
CN Boric acid (H3BO3), 2-[2-(2-methoxyethoxy)ethoxy]ethyl 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

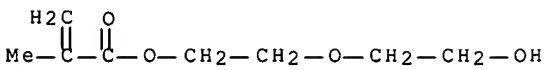
CM 1

CRN 10043-35-3
CMF B H3 O3



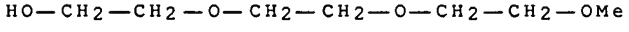
CM 2

CRN 2351-43-1
CMF C8 H14 O4



CM 3

CRN 112-35-6
CMF C7 H16 O4



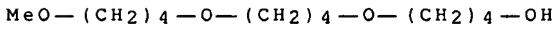
RN 693782-29-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H3BO3) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-27-3
CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

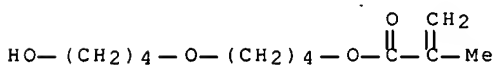
CM 2

CRN 693782-26-2
CMF C13 H28 O4



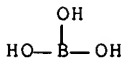
CM 3

CRN 78972-17-5
CMF C12 H22 O4



CM 4

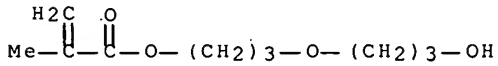
CRN 10043-35-3
CMF B H3 O3



RN 693782-30-8 HCAPLUS
CN Boric acid (H3BO3), 3-[3-(3-methoxypropoxy)propoxy]propyl 3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX NAME)

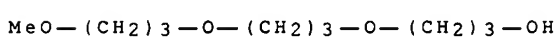
CM 1

CRN 78972-16-4
CMF C10 H18 O4



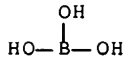
CM 2

CRN 13133-29-4
CMF C10 H22 O4



CM 3

CRN 10043-35-3
CMF B H3 O3



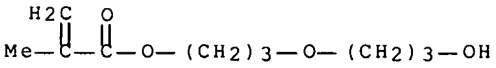
RN 693782-31-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with boric acid (H3BO3) 3-[3-(3-methoxypropoxy)propoxy]propyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-30-8
CMF C10 H22 O4 . x C10 H18 O4 . x B H3 O3

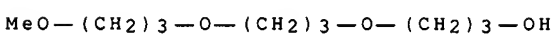
CM 2

CRN 78972-16-4
CMF C10 H18 O4



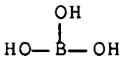
CM 3

CRN 13133-29-4
CMF C10 H22 O4



CM 4

CRN 10043-35-3
CMF B H3 O3



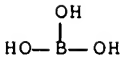
RN 693782-32-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-28-4
CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

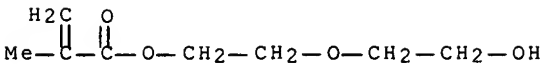
CM 2

CRN 10043-35-3
CMF B H3 O3



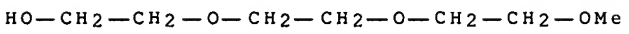
CM 3

CRN 2351-43-1
CMF C8 H14 O4



CM 4

CRN 112-35-6
CMF C7 H16 O4



IC ICM H01M010-40
INCL 429306000; 429317000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **lithium** secondary **battery**
IT **Battery** electrolytes
Ionic conductivity
(**lithium** secondary **battery**)
IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium** secondary **battery**)
IT Secondary **batteries**
(**lithium**; **lithium** secondary **battery**
)
IT 556-65-0, **Lithium** thiocyanate 2923-17-3, **Lithium** trifluoroacetate* 7440-44-0, Carbon, uses 7550-35-8, Lithium bromide (LiBr) 7791-03-9 10377-51-2, **Lithium** iodide 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 52627-24-4, Cobalt **lithium** oxide 62852-65-7, Dilithium decachlorodecaborate(2-) 90076-65-6
RL: DEV (Device component use); USES (Uses)
(**lithium** secondary **battery**)
IT **693782-27-3P 693782-28-4P 693782-29-5P**
693782-30-8P 693782-31-9P 693782-32-0P
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**lithium** secondary **battery**)
IT 24937-79-9, KF 1120
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium** secondary **battery**)

L23 ANSWER 12 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:430507 HCAPLUS Full-text
DOCUMENT NUMBER: 141:9608
TITLE: **Lithium** secondary **battery**
INVENTOR(S): Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Shoichi; Yabe, Takeshi

PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004101758	A1	20040527	US 2003-623497	200307 22
FR 2847721	A1	20040528	FR 2003-13581	200311 20
FR 2847721	B1	20060804		
KR 2004045326	A	20040601	KR 2003-82489	200311 20
CN 1503398	A	20040609	CN 2003-10118013	200311 20
US 2004101759	A1	20040527	US 2003-717646	200311 21
JP 2004186150	A	20040702	JP 2003-391808	200311 21

PRIORITY APPLN. INFO.: JP 2002-337790 A 200211 21
US 2003-623497 A2 200307 22

AB The object of the present invention is to provide a **lithium** secondary **battery** of high output. According to the present invention, there is provided a **lithium** secondary **battery** having a pos. electrode and a neg. electrode which reversibly intercalate and deintercalate lithium and an electrolyte containing an ion conductive material and an electrolytic salt, where the electrolyte contains an electrolytic salt and a boron-containing compound represented by the formula Z1(AO)mOB(O(AO)nZ2)O(AO)pZ3 or a polymer thereof (where B is a boron atom; Z1, Z2, and Z3 are organic groups having an acryloyl group or a methacryloyl group; AO represents an oxyalkylene group of C1-6 and comprises one or two or more of the oxyalkylene groups; and m, n and p each represent an average degree of polymerization of the oxyalkylene group and are 0-4).

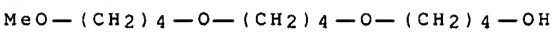
IT **693782-27-3P 693782-28-4P 693782-29-5P**
693782-30-8P 693782-31-9P 693782-32-0P
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**lithium** secondary **battery**)

RN 693782-27-3 HCAPLUS

CN Boric acid (H3BO3), 4-[4-(4-methoxybutoxy)butoxy]butyl 4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX NAME)

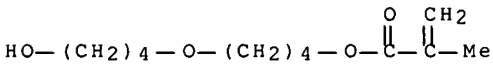
CM 1

CRN 693782-26-2
CMF C13 H28 O4



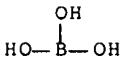
CM 2

CRN 78972-17-5
CMF C12 H22 O4



CM 3

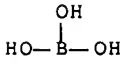
CRN 10043-35-3
CMF B H3 O3



RN 693782-28-4 HCAPLUS
CN Boric acid (H3BO3), 2-[2-(2-methoxyethoxy)ethoxy]ethyl 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

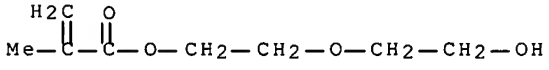
CM 1

CRN 10043-35-3
CMF B H3 O3



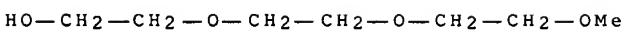
CM 2

CRN 2351-43-1
CMF C8 H14 O4



CM 3

CRN 112-35-6
CMF C7 H16 O4



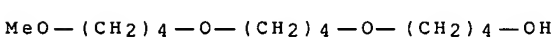
RN 693782-29-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H3BO3) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-27-3
CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

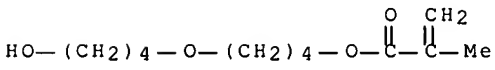
CM 2

CRN 693782-26-2
CMF C13 H28 O4



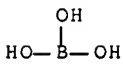
CM 3

CRN 78972-17-5
CMF C12 H22 O4



CM 4

CRN 10043-35-3
CMF B H3 O3

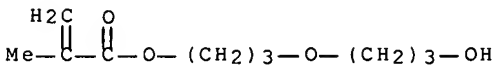


RN 693782-30-8 HCAPLUS
CN Boric acid (H3BO3), 3-[3-(3-methoxypropoxy)propoxy]propyl

3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX NAME)

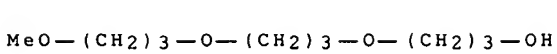
CM 1

CRN 78972-16-4
CMF C10 H18 O4



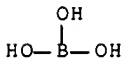
CM 2

CRN 13133-29-4
CMF C10 H22 O4



CM 3

CRN 10043-35-3
CMF B H3 O3



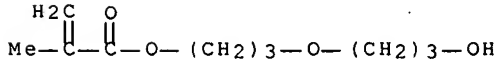
RN 693782-31-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with boric acid (H3BO3) 3-[3-(3-methoxypropoxy)propoxy]propyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-30-8
CMF C10 H22 O4 . x C10 H18 O4 . x B H3 O3

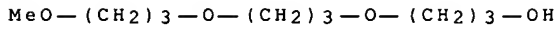
CM 2

CRN 78972-16-4
CMF C10 H18 O4



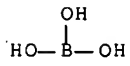
CM 3

CRN 13133-29-4
CMF C10 H22 O4



CM 4

CRN 10043-35-3
CMF B H3 O3



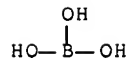
RN 693782-32-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-28-4
CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

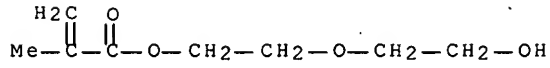
CM 2

CRN 10043-35-3
CMF B H3 O3



CM 3

CRN 2351-43-1
CMF C8 H14 O4



CM 4

CRN 112-35-6

CMF C7 H16 O4

HO—CH2—CH2—O—CH2—CH2—O—CH2—CH2—OMe

IC ICM H01M010-40
INCL 429306000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **lithium** secondary **battery**
IT **Battery** electrolytes
Ionic conductivity
(**lithium** secondary **battery**)
IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium** secondary **battery**)
IT Secondary **batteries**
(**lithium**; **lithium** secondary **battery**
)
IT 556-65-0, **Lithium** thiocyanate 2923-17-3, **Lithium** trifluoroacetate 7440-44-0, Carbon, uses 7550-35-8, Lithium bromide (LiBr) 7791-03-9, **Lithium** perchlorate 10377-51-2, **Lithium** iodide 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 52627-24-4, Cobalt **lithium** oxide 62852-65-7 90076-65-6
RL: DEV (Device component use); USES (Uses)
(**lithium** secondary **battery**)
IT **693782-27-3P 693782-28-4P 693782-29-5P 693782-30-8P 693782-31-9P 693782-32-0P**
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**lithium** secondary **battery**)
IT 7782-42-5, Graphite, uses 24937-79-9, KF 1120
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium** secondary **battery**)

L23 ANSWER 13 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:427714 HCAPLUS Full-text
DOCUMENT NUMBER: 141:9606
TITLE: Boron-containing compound, ion-conductive polymer and polyelectrolyte for electrochemical devices
INVENTOR(S): Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Shoichi; Yabe, Takeshi
PATENT ASSIGNEE(S): Hitachi, Ltd., Japan; NOF Corporation
SOURCE: Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1422781	A1	20040526	EP 2003-26140	

					200311 13
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
TW 244787	B	20051201	TW 2003-92131678		200311 12
JP 2004182982	A	20040702	JP 2003-389159		200311 19
KR 2004045322	A	20040601	KR 2003-82461		200311 20
CN 1502644	A	20040609	CN 2003-10118012		200311 20
US 2004147697	A1	20040729	US 2003-717645		200311 21
PRIORITY APPLN. INFO.:			JP 2002-337789	A	200211 21
			EP 2003-13841	A	200306 18

OTHER SOURCE(S): MARPAT 141:9606

AB An object of the present invention is to provide a boron-containing compound capable of forming an ion-conductive polyelectrolyte having high ion-conductive properties, and a polymer of the compound According to the present invention, there are provided a polymerizable boron-containing compound of formula Z1(AO)pOB(O(AO)mZ2)O(AO)nZ3 [where B is boron atom; Z1, Z2, and Z3 are organic groups having an acryloyl or methacryloyl group; AOs are independently an oxyalkylene group of C1-6 and are of one or more kinds; and m, n and p are independently an average number of moles of the oxyalkylene group(s) added of <4 and >0, provided that m+n+p ≥1] a polymer thereof, a polymer of a compound of formula Z4(AO)p1OB(O(AO)m1Z5)O(AO)n1Z6 and a compound of formula R1(AO)p2OB(O(AO)m2R2)O(AO)n2R3 [where Z4, Z5, and Z6 is an organic group having an acryloyl or methacryloyl group; R1, R2 and R3 are independently a hydrocarbon group of C1-10; AOs are independently an oxyalkylene group of C1-6 and are of one or more kinds; and m1, n1, p1, m2, n2, and p2 are independently an average no, of moles of the oxyalkylene group(s) added of <4 and >0, provided that each of the sum of m1+n1+p1 and the sum of m2+n2+p3 ≥1] and a polyelectrolyte for electrochem. device comprising either of these polymers and at least one electrolyte salt:.

IT **693782-27-3P 693782-28-4P 693782-29-5P**
693782-30-8P 693782-31-9P 693782-32-0P
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(boron-containing compound, ion-conductive polymer and polyelectrolyte for electrochem. devices)

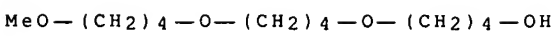
RN 693782-27-3 HCAPLUS

CN Boric acid (H3BO3), 4-[4-(4-methoxybutoxy)butoxy]butyl 4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX NAME)

CM 1

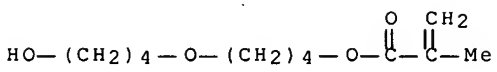
CRN 693782-26-2

CMF C13 H28 O4



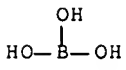
CM 2

CRN 78972-17-5
CMF C12 H22 O4



CM 3

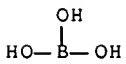
CRN 10043-35-3
CMF B H3 O3



RN 693782-28-4 HCAPLUS
CN Boric acid (H3BO3), 2-[2-(2-methoxyethoxy)ethoxy]ethyl 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

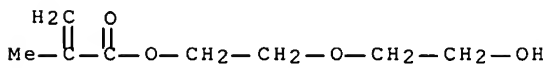
CM 1

CRN 10043-35-3
CMF B H3 O3



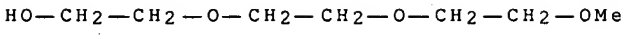
CM 2

CRN 2351-43-1
CMF C8 H14 O4



CM 3

CRN 112-35-6
CMF C7 H16 O4



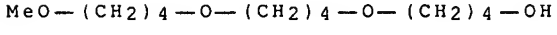
RN 693782-29-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H3BO3) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-27-3
CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

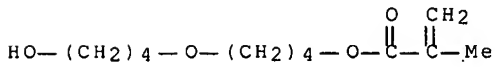
CM 2

CRN 693782-26-2
CMF C13 H28 O4



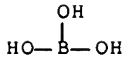
CM 3

CRN 78972-17-5
CMF C12 H22 O4



CM 4

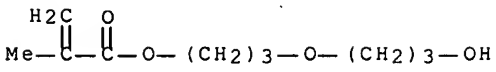
CRN 10043-35-3
CMF B H3 O3



RN 693782-30-8 HCAPLUS
CN Boric acid (H3BO3), 3-[3-(3-methoxypropoxy)propoxy]propyl 3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX NAME)

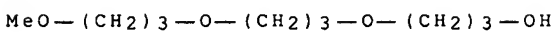
CM 1

CRN 78972-16-4
CMF C10 H18 O4



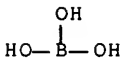
CM 2

CRN 13133-29-4
CMF C10 H22 O4



CM 3

CRN 10043-35-3
CMF B H3 O3



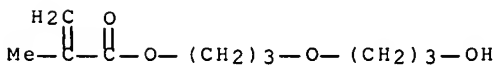
RN 693782-31-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with boric acid (H3BO3) 3-[3-(3-methoxypropoxy)propoxy]propyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-30-8
CMF C10 H22 O4 . x C10 H18 O4 . x B H3 O3

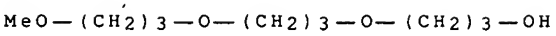
CM 2

CRN 78972-16-4
CMF C10 H18 O4



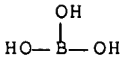
CM 3

CRN 13133-29-4
CMF C10 H22 O4



CM 4

CRN 10043-35-3
CMF B H3 O3



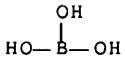
RN 693782-32-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-28-4
CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

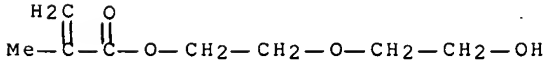
CM 2

CRN 10043-35-3
CMF B H3 O3



CM 3

CRN 2351-43-1
CMF C8 H14 O4



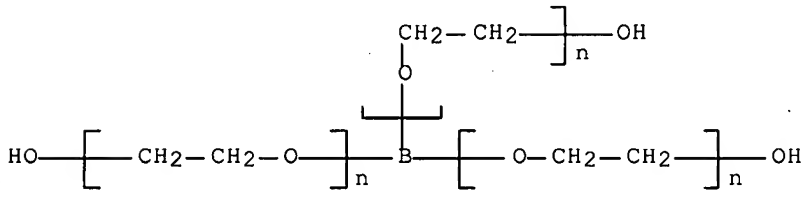
CM 4

CRN 112-35-6
CMF C7 H16 O4

HO—CH2—CH2—O—CH2—CH2—O—CH2—CH2—OMe

IC ICM H01M010-40
ICS H01B001-12; C07F005-04; C08G065-00; C08L071-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
IT **693782-27-3P 693782-28-4P 693782-29-5P**
693782-30-8P 693782-31-9P 693782-32-0P
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(boron-containing compound, ion-conductive polymer and polyelectrolyte for electrochem. devices)

L23 ANSWER 14 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:335507 HCAPLUS Full-text
DOCUMENT NUMBER: 141:26061
TITLE: A high electrode-reaction rate for high-power-density **lithium**-ion secondary **batteries** achieved by the addition of a Lewis acid
AUTHOR(S): Kato, Yuki; Ishihara, Takenobu; Ikuta, Hiromasa; Uchimoto, Yoshiharu; Wakihara, Masataka
CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Science and Engineering, Tokyo Institute of technology, Meguro-ku, Tokyo, 152-8552, Japan
SOURCE: Angewandte Chemie, International Edition (2004), 43(15), 1966-1969
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The charge-transfer reaction at the electrode/electrolyte interfaces is important in the fabrication of high-power-d. **lithium** -ion secondary **batteries**. This reaction rate is increased by adding a poly(ethylene glycol)-borate ester Lewis acid to the electrolyte. Because the Lewis acid interacts preferentially with anions (X-), an increase in the activity of lithium ions is induced by enhancing the dissociation of lithium salts (Li+X-).
IT **64631-20-5**, Polyethylene glycol boric acid ester
RL: **DEV (Device component use)**; USES (Uses)
(PEG-borate ester; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
RN 64631-20-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST **lithium** ion secondary **battery** Lewis acid polymer electrolyte borate
IT Binding energy
(between salt ions and PEGDME or PEG-borate ester, calculated; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT Polymer electrolytes
(high electrode-reaction rate for high-power-d. **lithium** -ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT Lewis acids
RL: DEV (Device component use); USES (Uses)
(high electrode-reaction rate for high-power-d. **lithium** -ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT Secondary **batteries**
(**lithium**; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT Exchange current (electric)
(of polymer electrolytes, influence of PEG-borate ester and temperature on; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT Activation energy
(to exchange current for various amts. of PEG-borate ester; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT 64631-20-5, Polyethylene glycol boric acid ester
RL: **DEV (Device component use)**; USES (Uses)
(PEG-borate ester; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT 24991-55-7, Poly(ethylene glycol) dimethyl ether
RL: DEV (Device component use); USES (Uses)
(PEGDME, d.p. 10-11, supporting electrolyte; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT 7439-93-2, Lithium, uses 7440-02-0, Nickel, uses
RL: DEV (Device component use); USES (Uses)
(high electrode-reaction rate for high-power-d. **lithium** -ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
IT 33454-82-9, Lithium triflate
RL: DEV (Device component use); USES (Uses)
(supporting electrolyte; high electrode-reaction rate for high-power-d. **lithium**-ion secondary **batteries** achieved by addition of borate ester Lewis acid to polymer electrolyte)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 15 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:270218 HCAPLUS Full-text
DOCUMENT NUMBER: 140:295973
TITLE: Compositions for polyelectrolytes, polyelectrolytes, electrical double-layer capacitors and nonaqueous electrolyte secondary cells
INVENTOR(S): Banno, Kimiyo; Yuyama, Kanako; Takagi, Kentaro; Masuda, Gen; Sato, Takaya
PATENT ASSIGNEE(S): Nisshinbo Industries, Inc., Japan
SOURCE: PCT Int. Appl., 61 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004027789	A1	20040401	WO 2003-JP11979	200309 19
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2499553	A1	20040401	CA 2003-2499553	200309 19
AU 2003264517	A1	20040408	AU 2003-264517	200309 19
EP 1548751	A1	20050629	EP 2003-797691	200309 19
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1682319	A	20051012	CN 2003-822253	200309 19
US 2006120021	A1	20060608	US 2005-528051	200503 17
PRIORITY APPLN. INFO.:			JP 2002-274335 A	200209 20
			JP 2003-111763 A	200304 16

WO 2003-JP11979 W
200309
19

AB The use of a composition for polyelectrolytes comprising a quaternary ammonium salt (A) represented by the general formula [R2-NR1(R3)-[(CH2)n-O]m-R4]+•X and an ionic fluid (B) brings about polyelectrolytes which retain excellent characteristics inherent in the ionic fluid and exhibit excellent safety and elec. conductivity and wide potential windows. In the formula, R1-3 are each independently alkyl having 1 to 5 C atoms or a substituent having a reactive unsatd. bond, or any two of R1-3 may form a ring; R4 is Me, Et, or a substituent having a reactive unsatd. bond, with the proviso that ≥1 of R1-4 is a substituent having a reactive unsatd. bond; X is a monovalent anion; m is an integer of 1 to 8; and n is an integer of 1 to 4.

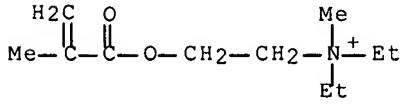
IT 676257-08-2
RL: **DEV (Device component use)**; USES (Uses)
(compns. for polyelectrolytes, polyelectrolytes, elec. double-layer capacitors and nonaq. electrolyte secondary cells)

RN 676257-08-2 HCAPLUS

CN Ethanaminium, N,N-diethyl-N-methyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

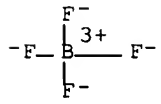
CM 1

CRN 48064-66-0
CMF C11 H22 N O2



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



IC ICM H01B001-06
ICS H01M010-40; C07C217-08; C07C311-48; C07C219-08; C08L033-14; H01G009-058; H01G009-038

CC 76-10 (Electric Phenomena)
Section cross-reference(s): 52, 72

IT 464927-72-8 464927-84-2 676257-08-2 676257-09-3
676257-10-6
RL: **DEV (Device component use)**; USES (Uses)

(compns. for polyelectrolytes, polyelectrolytes, elec. double-layer capacitors and nonaq. electrolyte secondary cells)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 16 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:715911 HCAPLUS Full-text
DOCUMENT NUMBER: 139:248006
TITLE: Gel polymer electrolyte from polyurethane containing quaternary ammonium group and electrochemical element using the same
INVENTOR(S): Ohama, Toru
PATENT ASSIGNEE(S): Sanyo Chemical Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003257491	A	20030912	JP 2002-60019	20020306
PRIORITY APPLN. INFO.:			JP 2002-60019	20020306

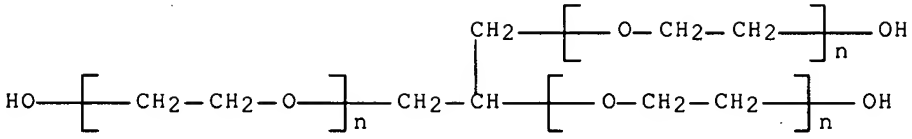
AB The gel polymer electrolyte comprises (A) a matrix polymer and (B) a nonaq. electrolytic solution, wherein (A) is a crosslinked polyurethane and/or crosslinked polyurethane-polyurea containing a quaternary ammonium group. The gel polymer electrolyte is used for an electrochem. element such as a **Li** secondary **battery**. The gel polymer electrolyte satisfies both ionic conductivity and gel strength.

IT **597544-48-4P 597544-50-8P 597578-30-8P**
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(gel polymer electrolyte from polyurethane containing quaternary ammonium group for electrochem. cell)

RN 597544-48-4 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-1,2,3-propanetriyltris[ω-hydroxy-, polymer with 1,6-diisocyanatohexane, α,α'-[(dimethyliminio)di-2,1-ethanediyl]bis[ω-hydroxypoly(oxy-1,2-ethanediyl)] tetrafluoroborate(1-) and α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

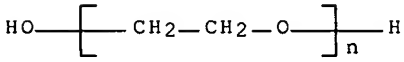
CM 1

CRN 31694-55-0
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C3 H8 O3
CCI PMS



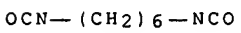
CM 2

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 3

CRN 822-06-0
CMF C8 H12 N2 O2



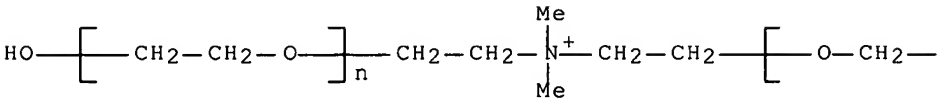
CM 4

CRN 597544-47-3
CMF (C2 H4 O)n (C2 H4 O)n C6 H16 N O2 . B F4

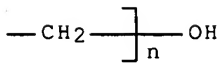
CM 5

CRN 152390-39-1
CMF (C2 H4 O)n (C2 H4 O)n C6 H16 N O2
CCI PMS

PAGE 1-A

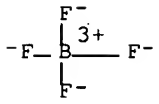


PAGE 1-B



CM 6

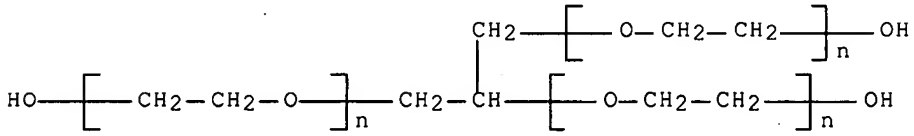
CRN 14874-70-5
CMF B F4
CCI CCS



RN 597544-50-8 HCAPLUS
CN Ethanaminium, 2-hydroxy-N,N-bis(2-hydroxyethyl)-N-methyl-, tetrafluoroborate(1-), polymer with 1,6-diisocyanatohexane, α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) and α,α',α''-1,2,3-propanetriyltris[ω-hydroxypoly(oxy-1,2-ethanediyl)] (9CI) (CA INDEX NAME)

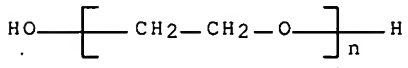
CM 1

CRN 31694-55-0
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C3 H8 O3
CCI PMS



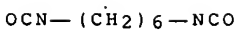
CM 2

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 3

CRN 822-06-0
CMF C8 H12 N2 O2

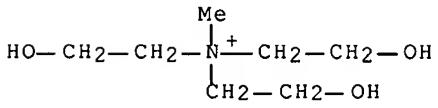


CM 4

CRN 597544-49-5
CMF C7 H18 N O3 . B F4

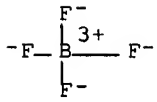
CM 5

CRN 44971-58-6
CMF C7 H18 N O3



CM 6

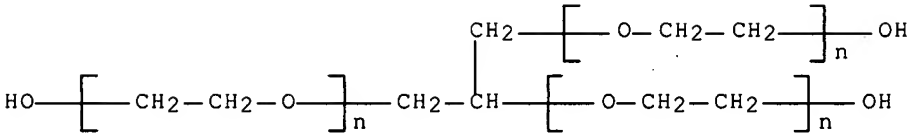
CRN 14874-70-5
CMF B F4
CCI CCS



RN 597578-30-8 HCAPLUS
CN Poly[oxy(methyl-1,2-ethanediyl)], α,α',α''-1,2,3-propanetriyltris[ω-hydroxy-, polymer with 1,6-diisocyanatohexane, α,α'-[(dimethyliminio)di-2,1-ethanediyl]bis[ω-hydroxypoly(oxy-1,2-ethanediyl)] tetrafluoroborate(1-) and α,α',α''-1,2,3-propanetriyltris[ω-hydroxypoly(oxy-1,2-ethanediyl)] (9CI) (CA INDEX NAME)

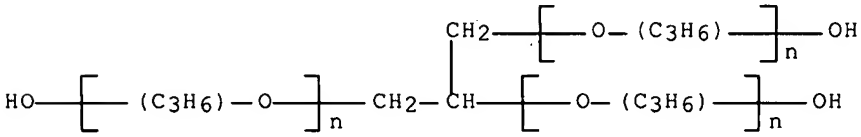
CM 1

CRN 31694-55-0
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C3 H8 O3
CCI PMS



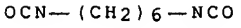
CM 2

CRN 25791-96-2
CMF (C3 H6 O)n (C3 H6 O)n (C3 H6 O)n C3 H8 O3
CCI IDS, PMS



CM 3

CRN 822-06-0
CMF C8 H12 N2 O2

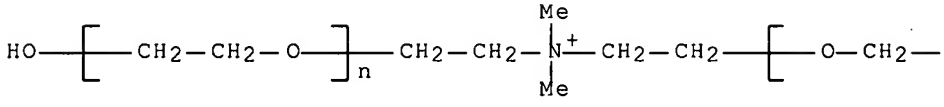


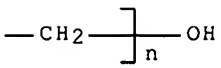
CM 4

CRN 597544-47-3
CMF (C2 H4 O)n (C2 H4 O)n C6 H16 N O2 . B F4

CM 5

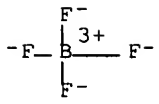
CRN 152390-39-1
CMF (C2 H4 O)n (C2 H4 O)n C6 H16 N O2
CCI PMS





CM 6

CRN 14874-70-5
CMF B F4
CCI CCS



IC ICM H01M010-40
ICS C08G018-50; C08L075-04; H01B001-06; H01G009-025; H01G009-028; H01M006-18
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38, 72
ST gel polymer electrolyte electrochem element **lithium** secondary **battery**; quaternary ammonium polyurethane polyurea
IT Battery electrolytes
(gel polymer electrolyte from polyurethane containing quaternary ammonium group for **lithium** secondary **battery**)
IT Secondary **batteries**
(**lithium**; gel polymer electrolyte from polyurethane containing quaternary ammonium group)
IT 597544-45-1P 597544-46-2P **597544-48-4P**
597544-50-8P 597578-28-4P 597578-29-5P
597578-30-8P 597578-31-9P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(gel polymer electrolyte from polyurethane containing quaternary ammonium group for electrochem. cell)

L23 ANSWER 17 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:694134 HCAPLUS Full-text
DOCUMENT NUMBER: 139:232985
TITLE: Polymer solid electrolyte and polymer solid electrolyte battery
INVENTOR(S): Bando, Toshinori; Kuratomi, Junichi; Ono, Tetsuo
PATENT ASSIGNEE(S): Yuasa Corporation, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

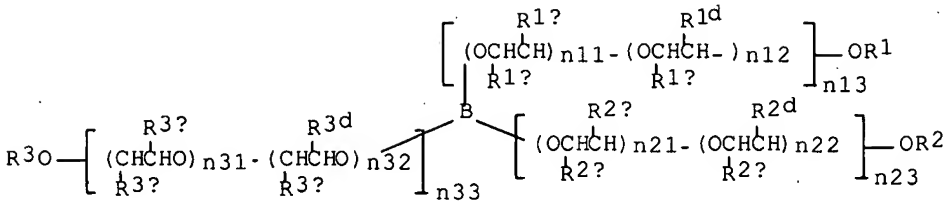
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

JP 2003249266	A	20030905	JP 2002-48481	200202 25

PRIORITY APPLN. INFO.: JP 2002-48481 200202 25

OTHER SOURCE(S): MARPAT 139:232985

GI



I

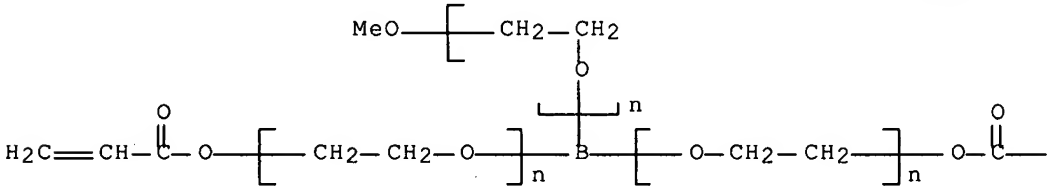
AB The electrolyte contains an electrolyte salt and a polymer; where the polymer has repeating structure units derived from a compound I [R1 = C>1 nonpolymerizable functional group; R2, R3 = polymerizable functional group; R1a, R1b, R1c, R1d, R2a, R2b, R2c, R2d, R3a, R3b, R3c, R3d = H or C1-3 alkyl group; n11, n12, n13, n21, n22, n23, n31, n32, n33 = integer 0-100; (n21 + n22 + n23) .++. 0; (n31 + n32 + n33) .++. 0; n13(n11+n12)> n23(n21+n22)> n33(n31+n32)]. The battery has the above electrolyte, a cathode containing a transition metal oxide based active mass and an anode containing a Li alloy, Li, or Li-intercalating substance based anode material.

IT **512206-28-9**
RL: **DEV (Device component use)**; USES (Uses)
(solid electrolytes containing electrolyte salts and polymers for secondary **lithium batteries**)

RN 512206-28-9 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), ω-methoxy-ω',ω''-bis[(1-oxo-2-propenyl)oxy]-α,α',α''-borylidynetris- (9CI) (CA INDEX NAME)

PAGE 1-A



—CH═CH2

IC ICM H01M010-40
ICS C08G065-28; C08G065-332; H01B001-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Secondary **batteries**
(**lithium**; solid electrolytes containing electrolyte salts and polymers for secondary **lithium batteries**)
IT Battery electrolytes
Polymer electrolytes
(solid electrolytes containing electrolyte salts and polymers for secondary **lithium batteries**)
IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(anode; solid electrolytes containing electrolyte salts and polymers for secondary **lithium batteries**)
IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; solid electrolytes containing electrolyte salts and polymers for secondary **lithium batteries**)
IT 90076-65-6 **512206-28-9**
RL: **DEV (Device component use)**; USES (Uses)
(solid electrolytes containing electrolyte salts and polymers for secondary **lithium batteries**)

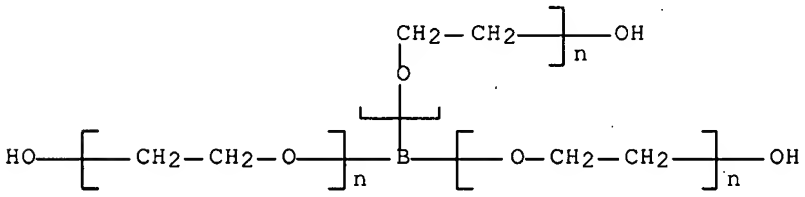
L23 ANSWER 18 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:480282 HCAPLUS Full-text
DOCUMENT NUMBER: 140:182227
TITLE: Thermally stable polymer electrolyte plasticized with PEG-borate ester for **lithium** secondary **battery**
AUTHOR(S): Wakihara, M.; Kato, Y.; Yokoyama, S.; Ikuta, H.; Uchimoto, Y.
CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Science and Engineering, Tokyo Institute of Technology, Meguro-ku, Tokyo, 152-8552, Japan
SOURCE: Solid State Ionics: Trends in the New Millennium, Proceedings of the Asian Conference, 8th, Langkawi, Malaysia, Dec. 15-19, 2002 (2002) , 195-201. Editor(s): Chowdari, B. V. R. World Scientific Publishing Co. Pte. Ltd.: Singapore, Singapore.
CODEN: 69EBUC; ISBN: 981-238-248-8
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A poly(ethylene glycol) (PEG)-borate ester was evaluated as plasticizer for solid polymer electrolytes composed of poly(ethylene glycol)methacrylate (PEGMA) and lithium bis- trifluoromethanesulfonimide (LiTFSI). The PEG-borate ester has good thermal stability and high flash point. The ionic conductivity of the polymer electrolyte increased with increasing amount of PEG-borate ester, to more than 10-4 S cm-1 at 30° and to 10-3 S cm-1 at 60°. The PEG-borate ester has three EO

chains whose length is variable, and the ionic conductivity depends on the EO chain length, e.g., the electrolyte containing PEG-borate ester of EO chain length = 3 showed the highest ionic conductivity Polymer electrolytes containing PEG-borate esters showed excellent thermal and electrochem. stability, up to 300° and up to 4.5 V vs. Li+/Li, resp. The transference number of lithium ions in the polymer electrolyte containing LiCF3SO3 or LiClO4 was higher than that in the electrolyte with LiN(CF3SO2)2. Ab initio calcns. were performed to estimate the interactions between the borate ester groups and the anions. The borate atom acts as a Lewis acid center and prefers to interact with hard basic anions, e.g., CF3SO3- or ClO4-. The calcn. results are in good agreement with exptl. results.

IT **64631-20-5**, Polyethylene glycol boric acid ester
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(plasticizer; mo. calcns. and measurement of charge transfer and electrochem. and thermal stability of LiTFSI-PEG-methacrylate electrolyte plasticized with PEG-borate)

RN 64631-20-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 52, 72

IT **64631-20-5**, Polyethylene glycol boric acid ester
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(plasticizer; mo. calcns. and measurement of charge transfer and electrochem. and thermal stability of LiTFSI-PEG-methacrylate electrolyte plasticized with PEG-borate)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 19 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:301090 HCAPLUS Full-text
DOCUMENT NUMBER: 138:324031
TITLE: Manufacture of borate ester compound, electrolyte for electrochemical device, and secondary battery
INVENTOR(S): Yokoyama, Shoichi; Yabe, Takeshi
PATENT ASSIGNEE(S): NOF Corporation, Japan
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003031453	A1	20030417	WO 2002-JP10049	200209 27
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003201344	A	20030718	JP 2002-282068	200209 27
EP 1431300	A1	20040623	EP 2002-800707	200209 27
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1596260	A	20050316	CN 2002-823808	200209 27
JP 2004002342	A	20040108	JP 2003-82497	200303 25
US 2004266981	A1	20041230	US 2004-489418	200403 12
US 6998465	B2	20060214		
PRIORITY APPLN. INFO.:			JP 2001-301122 A	200109 28
			JP 2002-98060 A	200203 29
			WO 2002-JP10049 W	200209 27

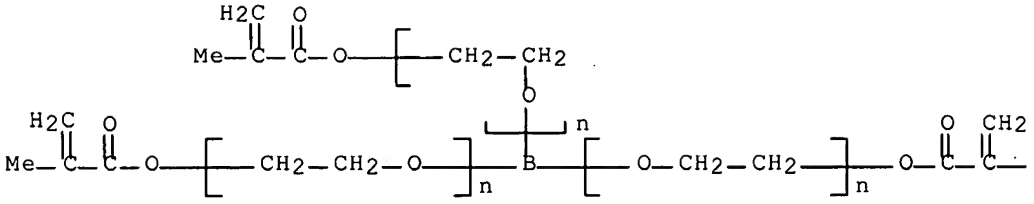
AB The ester compound is prepared by esterification of a compound I X[O(AO)nH]a (X = residue of a compound having 1-6 OH groups; AO = C2-4 oxyalkylene group; n = 0-600; a = 1-6) with a B containing compound II (RO)3B (R = C1-4 alkyl group). The battery uses an electrolyte containing the borate ester compound or its copolymer.

IT **512206-26-7P 512206-27-8P 512206-28-9P**
512206-29-0P 512206-30-3P 512206-31-4P
512206-32-5P 512206-33-6P 512777-00-3P
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(manufacture of borate ester compds. for secondary battery electrolytes)

RN 512206-26-7 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-[(2-methyl-1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A

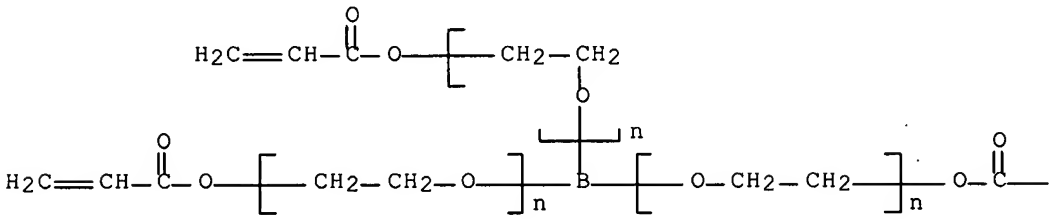


PAGE 1-B

—Me

RN 512206-27-8 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-[(1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A

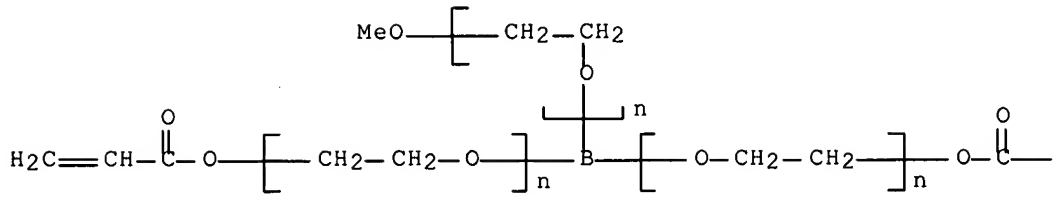


PAGE 1-B

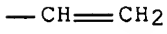
—CH═CH2

RN 512206-28-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), ω-methoxy-ω',ω''-bis[(1-oxo-2-propenyl)oxy]-α,α',α''-borylidynetris- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

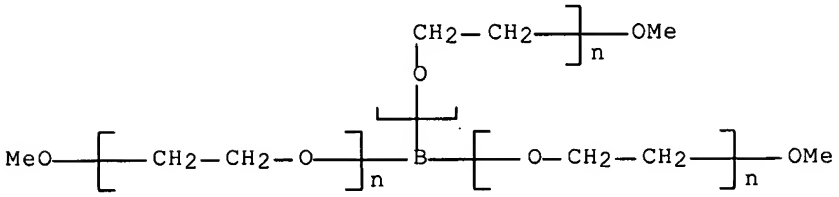


RN 512206-29-0 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-methoxy-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) and α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

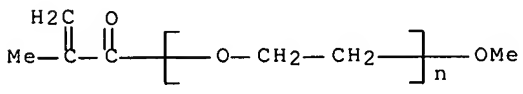
CM 1

CRN 75915-45-6
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C3 H9 B O3
CCI PMS



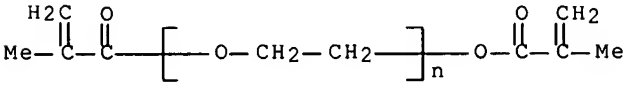
CM 2

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



CM 3

CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS

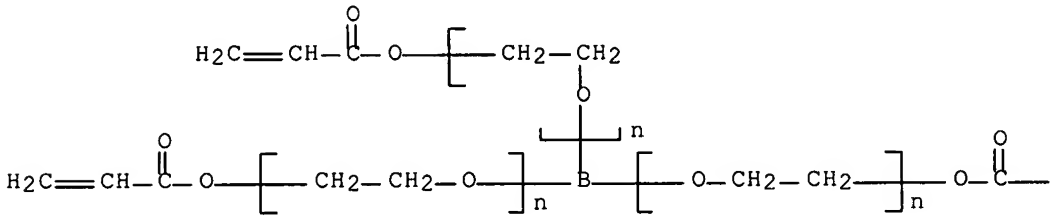


RN 512206-30-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-[(1-oxo-2-propenyl)oxy]-, homopolymer (9CI) (CA INDEX NAME)

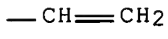
CM 1

CRN 512206-27-8
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C9 H9 B O6
CCI PMS

PAGE 1-A



PAGE 1-B



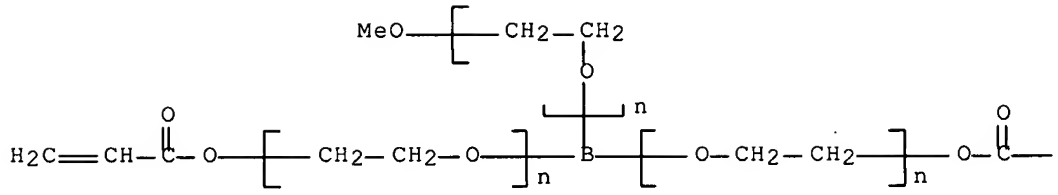
RN 512206-31-4 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), ω-methoxy-ω',ω''-bis[(1-oxo-2-propenyl)oxy]-α,α',α''-borylidynetris-, homopolymer (9CI) (CA INDEX NAME)

CM 1

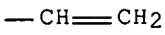
CRN 512206-28-9
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C7 H9 B O5

CCI PMS

PAGE 1-A



PAGE 1-B

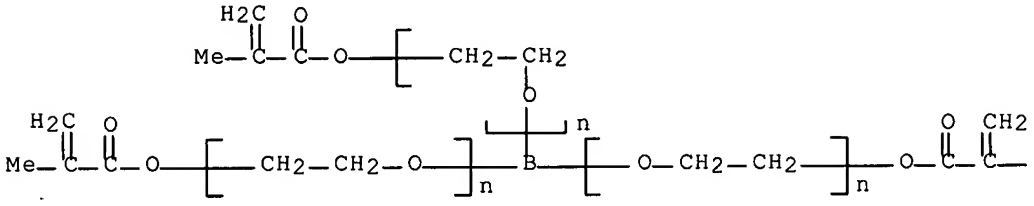


RN 512206-32-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-[(2-methyl-1-oxo-2-propenyl)oxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 512206-26-7
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C12 H15 B O6
CCI PMS

PAGE 1-A



PAGE 1-B

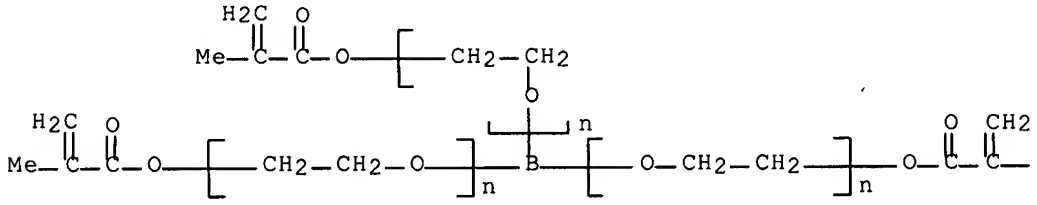
RN 512206-33-6 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-[(2-methyl-1-oxo-2-propenyl)oxy]-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 512206-26-7
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C12 H15 B O6
CCI PMS

PAGE 1-A

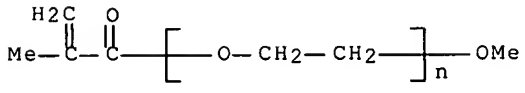


PAGE 1-B

—Me

CM 2

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



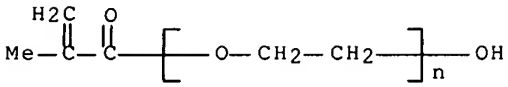
RN 512777-00-3 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxy-, ester with boric acid (H3BO3) ester with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

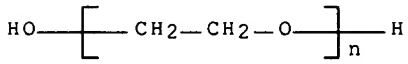
CRN 25736-86-1

CMF (C2 H4 O)n C4 H6 O2
CCI PMS



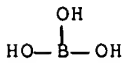
CM 2

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 3

CRN 10043-35-3
CMF B H3 O3



IC ICM C07F005-04
ICS H01B001-06; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 75915-45-6P 126880-52-2P **512206-26-7P**
512206-27-8P 512206-28-9P 512206-29-0P
512206-30-3P 512206-31-4P 512206-32-5P
512206-33-6P 512776-98-6P 512776-99-7P
512777-00-3P
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(manufacture of borate ester compds. for secondary battery electrolytes)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 20 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:240271 HCAPLUS Full-text
DOCUMENT NUMBER: 138:257903
TITLE: Polymer solid electrolyte and its use in **lithium battery**
INVENTOR(S): Bando, Toshinori; Kuratomi, Junichi; Ono, Tetsuo
PATENT ASSIGNEE(S): Yuasa Corporation, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003092138	A	20030328	JP 2001-280936	200109 17

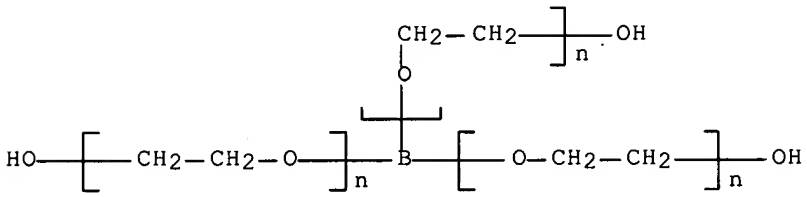
PRIORITY APPLN. INFO.: JP 2001-280936 200109 17

AB The electrolyte is made of ionic salt-containing covalent bond-free polymer alloys containing (1) polyethers with tridimensional network structures and (2) B- and polyether-containing polymers, e.g., B[(OCH2CH2)nOMe]3. The electrolyte improves Li ion transport number and gives the battery with high energy d., charge-discharge cycle performance, and safety without leakage.

IT 64631-20-5
RL: **DEV (Device component use)**; POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(semi-interpenetrating polymer networks; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

RN 64631-20-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS C08K003-00; C08K005-00; C08L071-00; C08L071-02; C08L075-04; H01B001-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **lithium battery** polyether polymer alloy electrolyte safety; boron polyether polymer alloy solid electrolyte; polyether network structure polymer alloy solid electrolyte

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic, semi-interpenetrating polymer networks; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT Polyethers, uses

RL: DEV (Device component use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(boron-containing; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT Secondary **batteries**
(**lithium**; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT Acrylic polymers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, semi-interpenetrating polymer networks; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT Battery electrolytes
Polymer electrolytes
(salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT Interpenetrating polymer networks
(semi-interpenetrating; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT 90076-65-6, Lithium bis(trifluoromethylsulfonyl)amide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT 9003-11-6DP, Ethylene oxide-propylene oxide copolymer, triol derivs., triacrylates, polymers
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(semi-interpenetrating polymer networks; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

IT **64631-20-5**
RL: **DEV (Device component use)**; POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(semi-interpenetrating polymer networks; salt-containing polymer alloy solid electrolyte for **Li battery** with high energy d. and cycle performance)

L23 ANSWER 21 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:936877 HCAPLUS Full-text
DOCUMENT NUMBER: 138:290328
TITLE: Thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**
AUTHOR(S): Kato, Yuki; Suwa, Kentaro; Yokoyama, Shoichi; Yabe, Takeshi; Ikuta, Hiromasa; Uchimoto, Yoshiharu; Wakihara, Masataka
CORPORATE SOURCE: Department of Applied Chemistry, Tokyo Institute of Technology, Graduate School of Science and Engineering, Meguro-ku, Tokyo, 152-8552, Japan
SOURCE: Solid State Ionics (2002), 152-153, 155-159
CODEN: SSIOD3; ISSN: 0167-2738
PUBLISHER: Elsevier Science B.V.

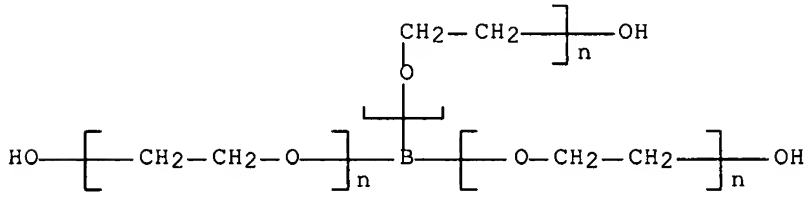
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel polymer electrolyte having borate ester groups, which are fixed to the backbone chain of the polymer, was prepared The backbone polymer was synthesized by reaction between polyethylene glycol and boric acid anhydride. The highest conductivity was found for the polymer electrolyte sample prepared by the polyethylene glycol having average mol. weight of 600 (PEG600), the values of the ionic conductivity were 5.8 + 10-5 S cm-1 at 30° and 2.6 + 10-4 S cm-1 at 60°, resp. The solid polymer electrolytes have relatively high thermal stability and electrochem. stability.

IT **64631-20-5P**, Polyethylene glycol boric acid ester
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexes with LiTFSI; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)

RN 64631-20-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76

ST thermally stable polymer electrolyte borate ester **lithium** secondary **battery**

IT Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(PEG 200, PEG 400, PEG 600, PEG 1000, PET 2000; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)

IT Stability
(electrochem.; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)

IT Secondary **batteries**
(**lithium**; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)

IT Cyclic voltammetry
Electric current-potential relationship
(of PEO-boric acid ester polymer/salt complexes; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)

IT Borates
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyethylene glycol esters, complexes with LiTFSI; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)

IT Crosslinking
(thermal stability enhanced by; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)
IT Battery electrolytes
Ionic conductivity
Polymer electrolytes
Thermal stability
(thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)
IT 25322-68-3, 1,2-Ethanediol, homopolymer
RL: RCT (Reactant); RACT (Reactant or reagent)
(PEG 200, PEG 400, PEG 600, PEG 1000, PET 2000; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)
IT **64631-20-5P**, Polyethylene glycol boric acid ester
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexes with LiTFSI; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)
IT 17341-24-1P, preparation 90076-65-6P, Lithium bis-trifluoromethanesulfonylimide
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexes with polyethylene glycol boric acid esters; thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)
IT 111-46-6, Diethylene glycol, reactions 112-27-6, Triethylene glycol 1303-86-2, Boric acid anhydride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(thermally stable solid polymer electrolyte containing borate ester groups for **lithium** secondary **battery**)
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 22 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:904593 HCAPLUS Full-text
DOCUMENT NUMBER: 138:15239
TITLE: Ion conductive polymer electrolyte, its manufacture, and secondary nonaqueous electrolyte battery
INVENTOR(S): Abe, Toshihiro; Sumita, Miwa
PATENT ASSIGNEE(S): Hitachi Maxell Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002343133	A	20021129	JP 2001-149581	200105 18

PRIORITY APPLN. INFO.: JP 2001-149581 200105

AB The electrolyte is a polymer containing quaternary phosphonium salt units of the formula (PR1R2R3)+ X- [R1-3 = Me, Et, n-Pr, iso-Pr, n-Bu, n-C5H13 (sic), Ph, p-methylphenyl, and/or p-fluorophenyl groups; X- = Cl, Br, I, NO3, ClO4, PF6, AsF6, SCN, BF4, (CF3SO2)2N, or (C2F5SO2)2N, p-trifluoromethylphbenzenesulfonate, p-toluenesulfonate, benzotriazine, or EtPS2 groups] attached to the mol. The electrolyte is prepared by hardening a liquid mixture, containing a polymerizable monomer having the quaternary phosphonium salt group at the end, a compound having ≥2 polymerizable functional groups, and an electrolyte salt.

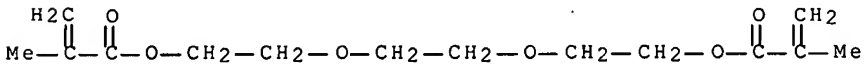
IT **477247-59-9P**
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(compns. and manufacture of ion conductive quaternary phosphonium salt polymer electrolytes for secondary **lithium batteries**)

RN 477247-59-9 HCAPLUS

CN Phosphonium, tributyl[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, tetrafluoroborate(1-), polymer with 1,2-ethanediylbis(oxy-2,1-ethanediyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 109-16-0
CMF C14 H22 O6

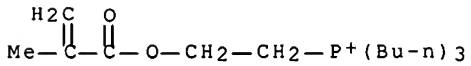


CM 2

CRN 477247-58-8
CMF C18 H36 O2 P . B F4

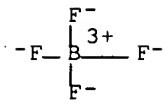
CM 3

CRN 477247-57-7
CMF C18 H36 O2 P



CM 4

CRN 14874-70-5
CMF B F4
CCI CCS



IC ICM H01B001-06
ICS H01B001-12; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Battery electrolytes
(compns. and manufacture of ion conductive quaternary phosphonium salt polymer electrolytes for secondary **lithium batteries**)
IT 96-49-1P, Ethylene carbonate 108-32-7P, Propylene carbonate 112-36-7P, Diethylene glycol, diethyl ether 14283-07-9P, Lithium fluoroborate 30714-78-4P, Ethyl butyl carbonate **477247-59-9P** 477281-67-7P 477281-68-8P
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(compns. and manufacture of ion conductive quaternary phosphonium salt polymer electrolytes for secondary **lithium batteries**)

L23 ANSWER 23 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:886585 HCAPLUS Full-text
DOCUMENT NUMBER: 137:355491
TITLE: Electrolyte containing polyoxyalkylene borate for secondary **lithium battery**
INVENTOR(S): Yabe, Takeshi; Yokoyama, Shoichi; Wakihara, Masataka
PATENT ASSIGNEE(S): NOF Corporation, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002334717	A	20021122	JP 2001-139421	200105 10

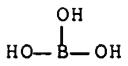
PRIORITY APPLN. INFO.: JP 2001-139421 200105 10

AB The title electrolyte comprises an ionic compound and an organic compound containing ethylene carbonate and ≥8 weight% borate ester of Z[(AO)lR]a (Z = residue of a compound containing 1-4 OH groups or OH; AO = C2-4 oxyalkylene; a = 1-4; when a = 1, l = 1-50; when a = 2-4, l = 0-50; l + a = 1-200; R = H or C1-4 alkyl; ≥1 of R = H) obtained by esterification with H3BO3 or boric anhydride. The electrolyte provides high ion conductivity and fire retardance for safety.
IT **106008-94-0P**
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrolyte containing polyoxyalkylene borate for secondary battery)

RN 106008-94-0 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-methyl-ω-hydroxy-, ester with boric acid (H3BO3) (CA INDEX NAME)

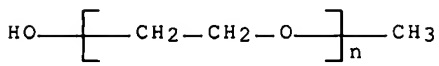
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS



IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST polyoxyalkylene borate ester ethylene carbonate electrolyte **lithium battery** safety
IT Secondary **batteries**
(**lithium**; electrolyte containing polyoxyalkylene borate for secondary battery)
IT **106008-94-0P**
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrolyte containing polyoxyalkylene borate for secondary battery)

L23 ANSWER 24 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:407259 HCAPLUS Full-text
DOCUMENT NUMBER: 137:8609
TITLE: Secondary battery electrolyte and the battery
INVENTOR(S): Yokoyama, Akihito; Wakihara, Masataka
PATENT ASSIGNEE(S): NOF Corporation, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002158039	A	20020531	JP 2000-354499	200011 21

PRIORITY APPLN. INFO.: JP 2000-354499
200011
21

AB The electrolyte contains an ionic compound and an organic polymer Z1[(A1O)lR1]a [Z1 = residue of a compound having 1-4 OH groups; A1 = (different) C2-4 oxyalkylene groups; l = 0-150; a = 1-4; l+a = 0-300; R1 = H, cyanoethyl group, or R3CH:CR3CO-; and R2 and R3 = H or Me] or borate ester of the polymer.

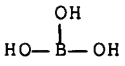
IT **106008-94-0**, Poly(ethylene glycol) methoxide, borate ester
340814-65-5 340814-66-6
RL: **DEV (Device component use)**; USES (Uses)
(compns. of oxyalkylene polymers for electrolytes in secondary **lithium batteries**)

RN 106008-94-0 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-methyl-ω-hydroxy-, ester with boric acid (H3BO3) (CA INDEX NAME)

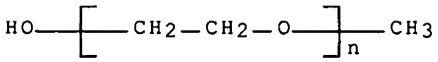
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS

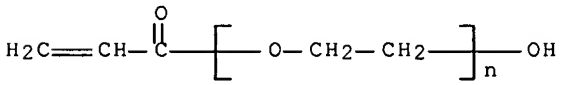


RN 340814-65-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propenyl)-ω-hydroxy-, ester with boric acid (H3BO3) ester with α-methyl-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

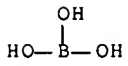
CM 1

CRN 26403-58-7
CMF (C2 H4 O)n C3 H4 O2
CCI PMS



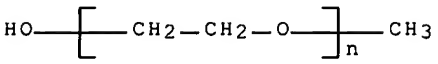
CM 2

CRN 10043-35-3
CMF B H3 O3



CM 3

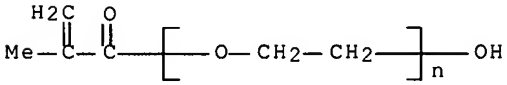
CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS



RN 340814-66-6 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

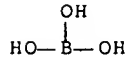
CM 1

CRN 25736-86-1
CMF (C2 H4 O)n C4 H6 O2
CCI PMS



CM 2

CRN 10043-35-3
CMF B H3 O3



IC ICM H01M010-40
ICS C08G065-28; C08G065-328; C08G065-329; C08G065-333; C08K003-24; C08L071-08
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes
(compns. of oxyalkylene polymers for electrolytes in secondary **lithium batteries**)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(compns. of oxyalkylene polymers for electrolytes in secondary **lithium batteries**)

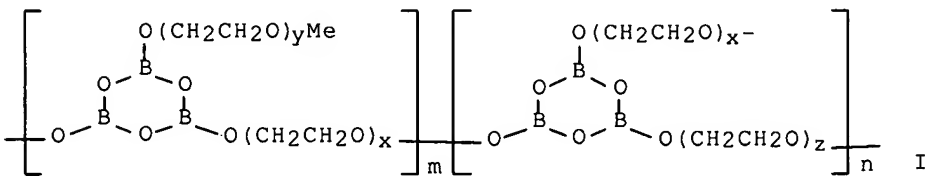
IT 107-13-1D, Acrylonitrile, reaction products with oxyalkylene polymers 25322-68-3, Poly(ethylene glycol) 25852-47-5, Poly(ethylene glycol) dimethacrylate 26915-72-0, Poly(ethylene glycol), methyl ether, methacrylate 26915-72-0D, reaction products with acrylonitrile 31694-55-0D, reaction products with acrylonitrile 32171-39-4D, reaction products with acrylonitrile 33454-82-9, Lithium trifluoromethanesulfonate **106008-94-0**, Poly(ethylene glycol) methoxide, borate ester **340814-65-5** **340814-66-6**
RL: **DEV (Device component use)**; USES (Uses)
(compns. of oxyalkylene polymers for electrolytes in secondary **lithium batteries**)

L23 ANSWER 25 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:139096 HCAPLUS Full-text
DOCUMENT NUMBER: 136:203051
TITLE: Nonaqueous electrolyte batteries using porous solid macromolecular electrolytes
INVENTOR(S): Sasaki, Hideki; Yasuda, Hideo
PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002056895	A	20020222	JP 2000-240472	20000808

PRIORITY APPLN. INFO.: JP 2000-240472 20000808

GI



I

AB The batteries contain porous solid macromol. electrolytes containing metaboric acid triester with polyethylene glycol monomethyl ether, and/or I (x, y, m, n = natural number). The esters may be included at surfaces of anodes and/or cathodes, in pores of anodes and/or cathodes, and/or between cathodes and anodes. **Li batteries** using the electrolytes show high active mass utilization, and high discharge capacity.

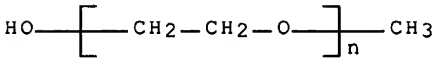
IT **400861-58-7DP**, lithium complexes
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(electrolytes; nonaq. electrolyte batteries using porous solid metaboric acid polyoxyethylene ester electrolytes)

RN 400861-58-7 HCAPLUS

CN Boric acid (H3BO3), polymer with 2,2'-[oxybis(2,1-ethanediyloxy)]bis[ethanol], ester with α-methyl-ω-hydroxypoly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS

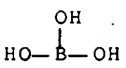


CM 2

CRN 204993-10-2
CMF (C8 H18 O5 . B H3 O3)x
CCI PMS

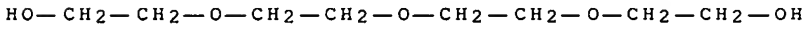
CM 3

CRN 10043-35-3
CMF B H3 O3



CM 4

CRN 112-60-7
CMF C8 H18 O5



IC ICM H01M010-40
ICS C08G065-26

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 37, 38
ST battery electrolyte porous metaboric acid polyoxyethylene ester; **lithium battery** porous electrolyte boroxane polyoxyethylene ester
IT 7439-93-2DP, Lithium, complexes with metaboric acid polyoxyethylene esters 400838-03-1DP, lithium complexes **400861-58-7DP**, lithium complexes
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(electrolytes; nonaq. electrolyte batteries using porous solid metaboric acid polyoxyethylene ester electrolytes)

L23 ANSWER 26 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:805353 HCAPLUS Full-text
DOCUMENT NUMBER: 135:345589
TITLE: Gas- and gasoline-barrier vinyl alcohol polymer-coated articles, their manufacture, and use for fuel tank attachments
INVENTOR(S): Michihata, Yoshizo; Takada, Shigeyoshi
PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

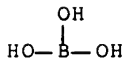
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001310961	A	20011106	JP 2000-127316	200004 27
PRIORITY APPLN. INFO.:			JP 2000-127316	200004 27

AB Vinyl alc. polymers are applied on unprimed substrates comprising compns. containing 100 parts resins and 0.01-70 parts thermoplastic resins having borate groups or B-containing groups which can be converted into borate groups in the presence of H2O. Thus, 100 parts Paxon BA 46-055 (HDPE) was pelletized with 30 parts EPT 3012p (EPDM) modified with 0.3 mmol/g of 1,3-butanediol borate groups, extruded into a sheet, and coated with poly(vinyl alc.) to give a coated sheet showing good peel strength.
IT **71343-37-8DP**, 1,3-Butanediol borate, reaction products with SBR or EPDM and triethylamine-borane
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(coating of borate group-containing resins with vinyl alc. polymers without primers for gas- and gasoline-barrier articles)
RN 71343-37-8 HCAPLUS
CN 1,3-Butanediol, ester with boric acid (H3BO3) (CA INDEX NAME)

CM 1

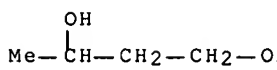
CRN 10043-35-3

CMF B H3 O3



CM 2

CRN 107-88-0
CMF C4 H10 O2



IC ICM C08J007-04
ICS B32B027-30; C08L101-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 39, 42
IT 107-21-1DP, Ethylene glycol, reaction products with HDPE and tri-Me borate 121-43-7DP, Trimethyl borate, reaction products with HDPE and ethylene glycol 1722-26-5DP, Triethylamine borane, reaction products with SBR or EPDM and butanediol borate 9002-88-4DP, HDPE, reaction products with tri-Me borate and ethylene glycol **71343-37-8DP**, 1,3-Butanediol borate, reaction products with SBR or EPDM and triethylamine-borane
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(coating of borate group-containing resins with vinyl alc. polymers without primers for gas- and gasoline-barrier articles)

L23 ANSWER 27 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:397251 HCAPLUS Full-text
DOCUMENT NUMBER: 135:7801
TITLE: Secondary battery electrolytes and the batteries
INVENTOR(S): Yokoyama, Shoichi; Wakihara, Masataka; Kobayashi, Takao; Suwa, Kentaro
PATENT ASSIGNEE(S): Nof Corporation, Japan
SOURCE: PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001039316	A1	20010531	WO 2000-JP8254	200011 22

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CZ, CH,

CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

JP 2001155771	A	20010608	JP 1999-332586	199911 24
JP 2001273925	A	20011005	JP 2000-87754	200003 28
CA 2392543	A1	20010531	CA 2000-2392543	200011 22
AU 2001015495	A5	20010604	AU 2001-15495	200011 22
EP 1258938	A1	20021120	EP 2000-977877	200011 22

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

US 6833220	B1	20041221	US 2002-130952	200205 24

PRIORITY APPLN. INFO.:

JP 1999-332586	A	199911 24
JP 2000-87754	A	200003 28
WO 2000-JP8254	W	200011 22

AB The electrolytes contain a n ionic compound and a polymer, where the polymer is Z1[(A1O)lR1]a (R1 = cyanoethyl, C1-12 hydrocarbon group, or H; Z1 = a residue of a compound having 1-6 OH groups; A1O is ≥1 C2-4 oxyalkylene group; l = 0-600, a = 1-6, and a+l = 0-600), or its borate ester or Z2[(A2O)mR2]b (R2 = H, cyanoethyl or R3CH:CR4CO; Z2 = OH or residue of a compound having 1-4 OH groups; A2O is ≥1 C2-4 oxyalkylene group; R3 and R4 = H or Me; m = 0-150, b = 1-4, and m+b = 0-300).

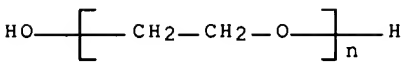
IT **39434-94-1 106008-94-0 340814-62-2 340814-64-4 340814-65-5 340814-66-6 340814-67-7**
RL: **DEV (Device component use)**; USES (Uses)
(compns. of oxyalkylene polymer electrolytes for secondary **lithium batteries**)

RN 39434-94-1 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-, ester with boric acid (H3BO3) (CA INDEX NAME)

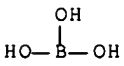
CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 2

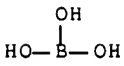
CRN 10043-35-3
CMF B H3 O3



RN 106008-94-0 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-methyl-ω-hydroxy-, ester with boric acid (H3BO3) (CA INDEX NAME)

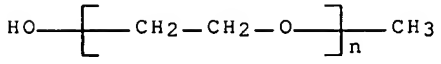
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS

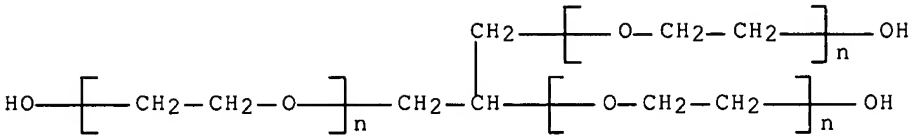


RN 340814-62-2 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-1,2,3-propanetriyltris[ω-hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

CM 1

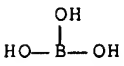
CRN 31694-55-0

CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C3 H8 O3
CCI PMS



CM 2

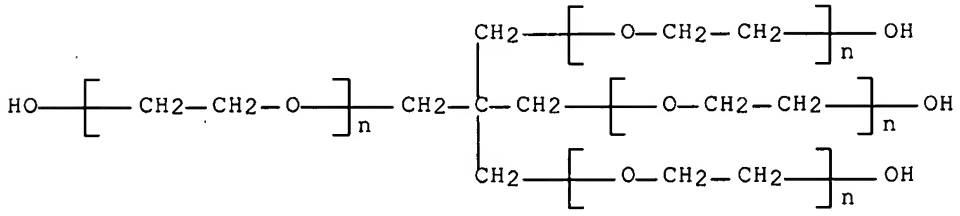
CRN 10043-35-3
CMF B H3 O3



RN 340814-64-4 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

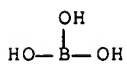
CM 1

CRN 42503-45-7
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C5 H12 O4
CCI PMS



CM 2

CRN 10043-35-3
CMF B H3 O3

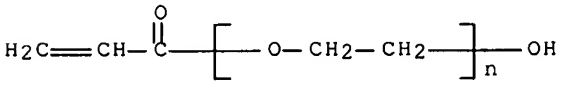


RN 340814-65-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propenyl)-ω-hydroxy-, ester with boric acid (H3BO3) ester with α-methyl-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

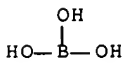
CM 1

CRN 26403-58-7
CMF (C2 H4 O)n C3 H4 O2
CCI PMS



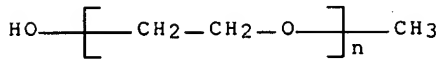
CM 2

CRN 10043-35-3
CMF B H3 O3



CM 3

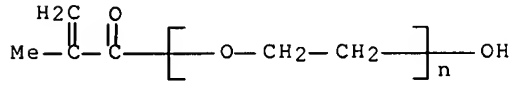
CRN 9004-74-4
CMF (C2 H4 O)n C H4 O
CCI PMS



RN 340814-66-6 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

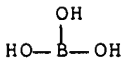
CM 1

CRN 25736-86-1
CMF (C2 H4 O)n C4 H6 O2
CCI PMS



CM 2

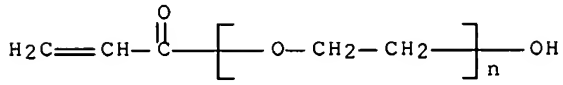
CRN 10043-35-3
CMF B H3 O3



RN 340814-67-7 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propenyl)-ω-hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

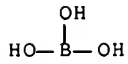
CM 1

CRN 26403-58-7
CMF (C2 H4 O)n C3 H4 O2
CCI PMS



CM 2

CRN 10043-35-3
CMF B H3 O3



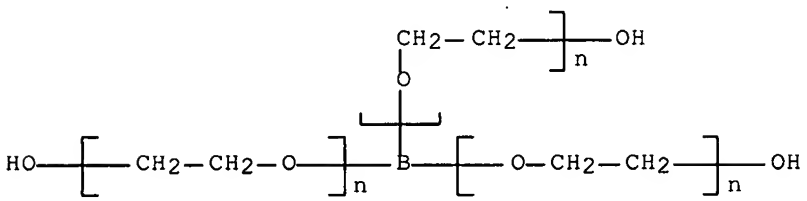
IC H01M010-40; C08G065-02; C08G065-332
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Battery electrolytes
(compns. of oxyalkylene polymer electrolytes for secondary lithium batteries)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(compns. of oxyalkylene polymer electrolytes for secondary lithium batteries)
IT 7791-03-9, Lithium perchlorate 25322-68-3 25736-86-1
25852-47-5 26915-72-0 39434-94-1 74750-04-2
90076-65-6 106008-94-0 340814-62-2
340814-64-4 340814-65-5 340814-66-6
340814-67-7
RL: DEV (Device component use); USES (Uses)
(compns. of oxyalkylene polymer electrolytes for secondary

lithium batteries)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 28 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:334555 HCAPLUS Full-text
DOCUMENT NUMBER: 135:124786
TITLE: Effect of additions of organic sulfornates on the conductivity of lithium conducting polymer electrolytes
AUTHOR(S): Bakenov, Zhumabay; Ikuta, Hiromasa; Wakihara, Masataka
CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Science and Engineering, Tokyo Institute of Technology, Ookayama, Meguro-ku, Tokyo, 152-8552, Japan
SOURCE: Electrochemistry (Tokyo, Japan) (2001), 69(5), 312-313
CODEN: EECTFA; ISSN: 1344-3542
PUBLISHER: Electrochemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The electrochem. properties of the solid polymer electrolytes (SPE) containing lithium trifluoromethanesulfon imide (LiTFSI) and novel lithium sulfonates have been investigated. Sulfonates as additives into the LiTFSI-based SPE showed ionic conductivities up to 5.1 x 10-4 S/cm at room temperature Improvement of the ionic conductivity is attributed to the formation of the coordination centers in the system and an increase of amorphous degree of the SPE.

IT **64631-20-5**, Polyethylene glycol boric acid ester
RL: **DEV (Device component use)**; USES (Uses)
(effect of addns. of organic sulfornates on the conductivity of lithium conducting polymer electrolytes)
RN 64631-20-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76
IT 25322-68-3, Polyethylene glycol 53469-29-7, Lithium dodecylsulfonate **64631-20-5**, Polyethylene glycol boric acid ester 82113-65-3 158454-23-0, Persoft 350679-87-7
RL: **DEV (Device component use)**; USES (Uses)
(effect of addns. of organic sulfornates on the conductivity of lithium conducting polymer electrolytes)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

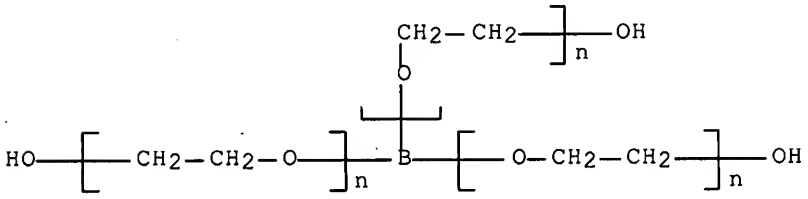
L23 ANSWER 29 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:273079 HCAPLUS Full-text
DOCUMENT NUMBER: 135:109596
TITLE: Thermally stable polymer electrolyte plasticized with PEG-borate ester for **lithium** secondary **battery**
AUTHOR(S): Kato, Yuki; Yokoyama, Shoichi; Ikuta, Hiromasa; Uchimoto, Yoshiharu; Wakihara, Masataka
CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Science and Engineering, Tokyo Institute of Technology, Tokyo, 152-8552, Japan
SOURCE: Electrochemistry Communications (2001), 3(3), 128-130
CODEN: ECCMF9; ISSN: 1388-2481
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel polymer electrolyte was prepared by employing poly(ethyleneglycol) (PEG)-borate ester as plasticizer to the electrolyte composed of poly(ethylene glycol) methacrylate (PEGMA) and lithium bis-trifluoromethanesulfonimide (LiTFSI). The PEG-borate ester shows good thermal stability and high flash point. The ionic conductivity of the polymer electrolyte increases with increasing amount of the PEG-borate ester and exhibits greater value than 10-4 S/cm at 30°C and 10-3 S/cm at 60°C.

IT **64631-20-5**, Polyethylene glycol boric acid ester
RL: **DEV (Device component use)**; USES (Uses)
(thermally stable polymer electrolyte plasticized with PEG-borate ester for **lithium** secondary **battery**)

RN 64631-20-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72

ST thermally stable polymer electrolyte **lithium** **battery**; plasticized PEG borate electrolyte battery; PEG methacrylate lithium trifluoromethanesulfonimide electrolyte

IT Battery electrolytes
Ionic conductivity
Thermal stability
(thermally stable polymer electrolyte plasticized with PEG-borate ester for **lithium** secondary **battery**)

IT 25249-16-5, Polyethylene glycol monomethacrylate 25721-76-0, Polyethylene glycol dimethacrylate **64631-20-5**, Polyethylene glycol boric acid ester 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
RL: **DEV (Device component use)**; USES (Uses)

(thermally stable polymer electrolyte plasticized with PEG-borate ester for **lithium** secondary **battery**)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 30 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:241632 HCAPLUS Full-text
DOCUMENT NUMBER: 132:275147
TITLE: Multiconditional SSCP for rapid and sensitive mutation scanning
INVENTOR(S): Liu, Qiang; Sommer, Steve S.
PATENT ASSIGNEE(S): City of Hope, USA
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000020853	A1	20000413	WO 1999-US23222	19991006
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9964161	A1	20000426	AU 1999-64161	19991006
US 6287441	B1	20010911	US 1999-413533	19991006
PRIORITY APPLN. INFO.:			US 1998-103377P P	19981007
			WO 1999-US23222 W	19991006

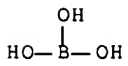
AB Expts. were performed to test for a set of SSCP conditions that would detect virtually all mutations in a nucleic acid being analyzed. The effects of buffer, gel matrix, temperature, and additive were all tested. Dideoxy fingerprinting was used as a tool to generate a large statistical sample (about 1,500) of mutation-containing single-stranded segments in order to evaluate adequately the sensitivity under a given condition. Mutations in exons H and B/C of the factor IX gene were utilized. SSCP sensitivity, as conveniently measured by the average SSCP efficiency, varied with conditions. Correlation coeffs. (R) identified pairs of conditions that were either close to independent or complementary. Five conditions were selected with sufficient redundancy to detect all the mutations in the set tested. The sensitivity of multi-conditional SSCP (SSCP5) was determined

by blinded analyses on samples containing mutations in all the eight exon regions in the factor IX gene. All of the 84 single-base substitutions were detected in the blinded. 90% of these mutations were detected by more than one condition. SSCP5 is estimated to be five times faster than fluorescent DNA sequencing for the detection of virtually all mutations when the five conditions are applied.

IT **123632-50-8**
RL: **DEV (Device component use)**; USES (Uses)
(electrophoresis buffer; multiconditional SSCP for rapid and sensitive mutation scanning)
RN 123632-50-8 HCAPLUS
CN Boric acid (H3BO3), compd. with 2-amino-2-(hydroxymethyl)-1,3-propanediol (1:1) (9CI) (CA INDEX NAME)

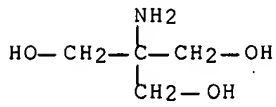
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 77-86-1
CMF C4 H11 N O3



IC ICM G01N027-26
CC 3-1 (Biochemical Genetics)
IT **123632-50-8** 263557-61-5 263557-62-6
RL: **DEV (Device component use)**; USES (Uses)
(electrophoresis buffer; multiconditional SSCP for rapid and sensitive mutation scanning)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 31 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:816032 HCAPLUS Full-text
DOCUMENT NUMBER: 130:54854
TITLE: Wide electrochemical window solvents for use in electrochemical devices and electrolytes incorporating such solvents
INVENTOR(S): Angell, Charles Austen; Zhang, Sheng-Shui; Xu, Kang
PATENT ASSIGNEE(S): Arizona Board of Regents, USA
SOURCE: U.S., 23 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5849432	A	19981215	US 1996-741659	19961031
CA 2236934	A1	19970509	CA 1996-2236934	19961101
EP 858678	A1	19980819	EP 1996-940268	19961101
R: DE, FR, GB, IT				
PRIORITY APPLN. INFO.:			US 1996-29114P P	19961024
			US 1995-6207P P	19951103
			US 1995-6435P P	19951113
			US 1996-741659 A	19961031
			WO 1996-US17490 W	19961101

OTHER SOURCE(S): MARPAT 130:54854

AB A B-containing electrolyte comprises an electrolyte solute and a B-containing solvent (RO)R1OBX, where X is a halogen, and R and R1 may be the same or different and are independently selected from linear aliphatic alkyl groups, branched aliphatic alkyl groups, and aromatic alkyl groups; which alkyl groups may be substituted with substituents of varying electronegativity. The R and R1 taken together also can form a heterocyclic ring containing a OBO linkage.

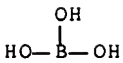
IT **32067-18-8P**, Boric acid-1,6-hexane diol copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(solvent for **lithium-battery** electrolytes)

RN 32067-18-8 HCAPLUS

CN Boric acid (H3BO3), polymer with 1,6-hexanediol (9CI) (CA INDEX NAME)

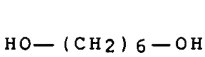
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 629-11-8
CMF C6 H14 O2



IC ICM H01M006-14
INCL 429190000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 23, 28, 38
IT 20905-35-5P
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(solvent for **lithium-battery** electrolytes)
IT 6543-19-7P 90011-03-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(solvent for **lithium-battery** electrolytes)
IT 681-84-5DP, Methyl orthosilicate, reaction products with 1,3-Propanediol, cyclic ester with boric acid (H3BO3), trimethylene ester 1003-43-6P **32067-18-8P**, Boric acid-1,6-hexane diol copolymer 190733-11-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(solvent for **lithium-battery** electrolytes)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 32 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:410690 HCAPLUS Full-text
DOCUMENT NUMBER: 127:37157
TITLE: Electrolyte solutions containing wide electrochemical window solvents and electrochemical devices using the solutions
INVENTOR(S): Angell, Charles Austen; Zhang, Sheng Shui; Xu, Kang
PATENT ASSIGNEE(S): Arizona Board of Regents, USA
SOURCE: PCT Int. Appl., 46 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9716862	A1	19970509	WO 1996-US17490	199611

01
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN

CA 2236934	A1	19970509	CA 1996-2236934	199611 01
AU 9677198	A	19970522	AU 1996-77198	199611 01
EP 858678	A1	19980819	EP 1996-940268	199611 01
R: DE, FR, GB, IT				
JP 11514790	T	19991214	JP 1996-517555	199611 01

PRIORITY APPLN. INFO.:	US 1995-6207P	P 199511 03
	US 1995-6435P	P 199511 13
	US 1996-29114P	P 199610 24
	US 1996-741659	A 199610 31
	WO 1996-US17490	W 199611 01

AB The electrolyte solns. contain an electrolyte solute and a B compound as solvent fo the solute. The B compound is selected from R1O(R2O)BX, R1O(R2O)OR3, R1O(R2O)B(OR3)OR4, and R1O(R2O)BOZOB(OR3)OR4, where X is a halogen, R1-4are straight or branched chain aliphatic or aromatic alkyl groups that may be substituted with substituents of varying electronegativity, and Z is a straight or branched chain aliphatic or aromatic alkyl group or siloxane group. The solute is selected from LiAlCl4, LiClO4, LiN(SO2CF3)2, LiSO3CF3, and the Na analogs. The electrochem. devices are preferably **Li batteries** .

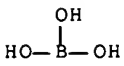
IT **32067-18-8P**
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)
(manufacture of boron compds. as electrolyte solvent with wide electrochem. windows for secondary **lithium batteries**)

RN 32067-18-8 HCAPLUS

CN Boric acid (H3BO3),. polymer with 1,6-hexanediol (9CI) (CA INDEX NAME)

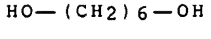
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 629-11-8
CMF C6 H14 O2



IC ICM H01M006-14
ICS H01M006-16; H01M006-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery** electrolyte boron compd solvent
IT Battery electrolytes
(manufacture of boron compds. as electrolyte solvent with wide electrochem. windows for secondary **lithium batteries**)
IT 96-49-1, Ethylene carbonate 681-84-5 9003-20-7, Poly(vinyl acetate)
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent mixts. containing boron compds. with wide electrochem. windows for secondary **lithium batteries**)
IT 1003-43-6P 6543-19-7P 20905-35-5P **32067-18-8P** 90011-03-3P 190733-11-0P
RL: **DEV (Device component use)**; IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)
(manufacture of boron compds. as electrolyte solvent with wide electrochem. windows for secondary **lithium batteries**)

L23 ANSWER 33 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1982:502790 HCAPLUS Full-text
DOCUMENT NUMBER: 97:102790
TITLE: Boron diffusion source
PATENT ASSIGNEE(S): Tokyo Denshi Kagaku K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 57073931	A	19820508	JP 1980-150222	

198010
28

JP 62027529 B 19870615
PRIORITY APPLN. INFO.: JP 1980-150222

198010
28

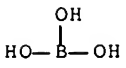
AB A B diffusion source for the fabrication of a semiconductor device consists of a reaction product from a B containing compound and polyol, and a solvent. Thus, a mixture from mannitol 182, boric acid 124, ethylene glycol monoethyl ether 200, and H2O 44 g was allowed to react at 80° for 3 h while stirring. The reaction product 1 weight part was mixed with EtOH 4 weight parts to give a B diffusion source.

IT **51845-86-4D**, reaction product with poly(vinyl alc.)
RL: **DEV (Device component use)**; TEM (Technical or engineered material use); USES (Uses)
(boron diffusion sources from, for fabrication of semiconductor devices)

RN 51845-86-4 HCAPLUS
CN Boric acid (H3BO3), ethyl ester (9CI) (CA INDEX NAME)

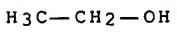
CM 1

CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 64-17-5
CMF C2 H6 O



IC H01L021-22
CC 76-3 (Electric Phenomena)
IT 69-65-8D, reaction product with boric acid 9002-89-5D, reaction product with Et borate 9086-85-5D, reaction product with anhydrous boric acid 10043-35-3D, reaction product with mannitol 10294-34-5D, reaction product with poly(vinylbutyral) **51845-86-4D**, reaction product with poly(vinyl alc.)
RL: **DEV (Device component use)**; TEM (Technical or engineered material use); USES (Uses)
(boron diffusion sources from, for fabrication of semiconductor devices)

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